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A PROGRAM OF EDUCATION IN ACCIDENT PREVENTION, WITH METHODS AND RESULTS

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A PROGRAM OF EDUCATION IN ACCIDENT PREVENTION, WITH METHODS AND RESULTS.

I. HISTORY OF EDUCATION IN ACCIDENT PREVENTION.

No movement in education in recent years has taken hold of the imagination and emotions of the American business man more effectively than education in accident prevention. This appeal to the business man is perhaps due more than anything else to the fact that when the educator begins to talk of education in terms of saving human lives he is using a language that is comprehensible to the man outside of the profession. Furthermore, the business man has become thoroughly acquainted with the possibilities of educational endeavor in the reduction of accidents in the industry of the country. Early in the twentieth century the employers in the steel industry conceived the idea of the necessity of conserving the lives of their employees and the elimination of deaths and serious injuries to the laborers. Furthermore, they conceived the problem originally as a matter of guarding machinery so that it would be made as nearly as possible proof against carelessness on the part of the employees.

Those interested in the reduction of accidents in the steel industry soon discovered, however, that little progress could be made through mechanical means, and changed the emphasis from the introduction of mechanical devices to guard machinery to the instruction of the employees in methods of work that would guard the workers against unnecessary accident. The upshot of the matter was that the number and seriousness of the accidents decreased in a very marked way. The effect of this safety movement may be clearly shown from a table giving the safety experience of a large steel plant from 1905 to 1917. The experience of this plant is of particular interest since complete accident records were available for such an extended period. There is a pronounced, although not entirely regular, decline in both the frequency and severity of accidents during the course of the period covered by the statistics.¹

¹ U. S. Department of Labor, Bu. of Labor Statistics, June, 1918, p. 18.

TABLE 1.—*Frequency and severity of accidents.*

Year.	300-day workers.	Accident frequency rates (per 1,000 of 300-day workers).	Accident severity rates (days lost per 300-day worker, including allowance for deaths and permanent disabilities)
1905.....	6,406	300	34.5
1906.....	7,494	214	54.3
1907.....	7,585	189	38.1
1908.....	4,575	150	29.9
1909.....	6,215	174	23.7
1910.....	7,642	134	19.9
1911.....	5,774	112	18.6
1912.....	7,396	153	14.3
1913.....	7,652	115	21.3
1914.....	4,741	74	12.2
1915.....	5,599	48	20.6
1916.....	9,634	96	12.4
1917.....	10,862	85	12.9

The effect of the safety campaign may be further illustrated by a study of the accident statistics of the Commonwealth Steel Co. for the years 1913 to 1918.

TABLE 2.—*Accident statistics: Commonwealth Steel Co.*

Year.	Deaths.	Lost-time cases.	Compensation cases.	Compensation received by injured.	Days lost per employee (actual).
1913.....	2	800	330	\$20,015	7.2
1914.....	1	414	168	8,138	4.2
1915.....	0	190	98	2,822	2.3
1916.....	0	769	223	7,638	2.6
1917.....	1	371	141	9,175	1.4
1918.....	0	124	57	4,391	.6

The result of the remarkable reduction of accidents in the steel industry led to the creation, in 1912, of the National Society for the Reduction of Industrial Accidents which later became the National Safety Council. From the time of the organization of the society, its leaders felt that the fundamental way of eliminating accidents was through education, and that this education should be carried on in the schools—not merely the engineering schools, but the public schools. Many efforts were made to induce educators to undertake safety instruction and some progress was made along this line. A number of books, such as *Sure Pop* and *Safety for Little Folks* were prepared at the suggestion of the National Safety Council, and used very widely as supplementary readers.

The superintendent of schools of Rochester, N. Y., published a monograph consisting of topics adapted to the various grades, and

placed this list in the hands of the teachers of that city. There was, however, no attempt in this monograph to suggest a method of incorporating the instruction in the regular subjects of the curriculum, although the list of topics was an admirable one and served as an adequate basis for instruction where teachers were trained in the proper use of the data presented.

The monograph had little direct influence, however, in extending safety instruction in the schools outside of Rochester. Teachers elsewhere who became familiar with the suggestions for the Rochester course of study were unwilling to undertake accident instruction, because of the fact that the Rochester course meant the addition of a new subject to the curriculum, or the introduction of this additional material into a single subject, such as civics. To the overworked teacher, an enlargement of the number of subjects or the crowding of safety material into any single subject meant an extra burden that she was unwilling to carry. Furthermore, superintendents were not willing to urge reluctant teachers to undertake the extra burden, and safety instruction was not introduced into many schools.

The National Safety Council, assisted by State bureaus of labor and others interested in safety education, next attempted to promote safety by an appeal to the State legislatures, with the result that Ohio passed a law requiring every teacher to devote one-half hour each week to the instruction in accident prevention. Pennsylvania followed, with a law in 1920, but no progress was made through these efforts. The teachers in general disregarded the law. What was needed was not legislation, but a satisfactory method of teaching safety.

While the National Safety Council was busily engaged in promoting plans for safety instruction in the public schools of the country, other influences were at work to make their plan easier of introduction into the schools when once worked out. The World War with its calamitous loss of life created a demand for man power that turned the thought of the country toward human conservation. The war made us conscious of the criminal and wholly unnecessary loss of life from accidents and added greatly to the growing opinion among educators and others that a plan of education in accident prevention should be worked out and put into operation as a part of our school curriculum. In 1917, after our entrance into the war, Prof. George D. Strayer, of Columbia University, was appointed chairman of a committee of the National Education Association, and was instrumental in organizing this committee for the consideration of plans for the reconstruction of education to meet the new demands put upon us by the war, and to eliminate the weaknesses of our educational system discovered as a result of the war. Supt. John W. Withers, of the St. Louis schools, who was a member of the com-

mittee, was appointed chairman of a subcommittee on education in health. The pressure of his duties as superintendent made it impossible for him to do the active work of the committee, and he requested the writer to work out the details of the program.

The writer associated with him in this task the members of the faculty of the Harris Teachers College and they began a program of experimentation. A little study soon demonstrated that while there was an enormous loss of life, and much ill health and suffering resulting from an inadequate health program in our schools, the requirements of human conservation as contemplated were much larger in scope than those of education in health. These requirements called for a plan of education in accident prevention as well.

It was at this point in our investigations that C. W. Price, general manager of the National Safety Council, approached Supt. Withers and suggested that he introduce some sort of safety instruction in the St. Louis schools. The general manager had no plan to offer. However, after considerable further experimentation a plan was prepared and published in 1919,² and since that time, and as a result of the St. Louis plan, extensive interest has been aroused in safety education throughout the country. One of the first cities to follow St. Louis was Detroit. The superintendent of Detroit schools authorized the publication of a pamphlet giving suggestions for safety instruction in 1920. In the same year the superintendent of the State of Oregon prepared a similar monograph which was placed in the hands of the teachers of the entire State. By the opening of the school year in September, 1921, the Cleveland board of education had followed St. Louis and prepared a course of study for the first six grades. The definiteness and suggestiveness of the plan of teaching safety met with such favor among educators that education in accident prevention has become recognized as a vital part of the curriculum of schools in all parts of the country.

The department of education of Pennsylvania is now preparing a course of study for the teachers of that State. Chicago is preparing an outline for that city. These various programs follow in general the plan worked out in St. Louis. The contribution made in each of these publications is that of adapting the program to the needs of the different communities and centers with which the educational authorities are dealing, and shows that the work in St. Louis was the pioneer effort that stimulated so wide an interest in the promotion of accident prevention which is being undertaken generally throughout the country.

² See Education in accident prevention, by E. George Payne. Published by Lyons & Carnahan, Chicago and New York.

II. THE NEED OF EDUCATION IN ACCIDENT PREVENTION.

The need of education in accident prevention is now generally recognized, but it is necessary here to outline under a number of heads the imperative necessity of taking immediate steps in our schools to insure adequate instruction.

(A) AN ANALYSIS OF PUBLIC ACCIDENTS.³

The relatively great importance of public accidents as a factor in accident mortality has been signally demonstrated by statistics from several sources. An analysis of fatalities through accident in the United States for a single week ending August 28, 1920, shows that, of 1,208 accidental deaths, no fewer than 758, or 62.7 per cent, were caused by public accidents; 359, or 29.7 per cent, were the result of industrial accidents; and the remaining 91, or 7.6 per cent, were the result of home accidents. These data were gathered by the National Safety Council with the cooperation of 200 city and county coroners; the secretaries of 35 local safety councils, and 8,000 representatives of the National Safety Council's member companies.⁴ Second, out of 20,045 accident claims paid by the Travelers' Insurance Co. during the year 1920, only 3,126, or 15.6 per cent, were classified as home accidents; 7,572, or 37.8 per cent, were included in the occupational group, and the remainder, 9,347, or 46.6 per cent, were public accidents of one kind or another. A summary of 91,896 claims paid over the five-year period, 1916-1920, shows about the same percentage distribution. Third, a consideration of the causes of accidental deaths for the entire United States for 1919 shows that the leading causes were falls, automobiles, burns, railroads, and drowning. Of these, burns result largely from home accidents; falls are probably more equally divided among public, home, and industrial accidents; but the three remaining causes—automobiles, railroads, and drownings—are almost entirely public accidents. These facts are sufficient evidence of the enormous amount of intensive safety work that is still to be done in the field of public accidents.

There were approximately 75,500 fatal accidents in the continental United States during 1919, of which number 55,500 were males and 20,000 females. This estimate is made from the United States Census Bureau's statistics for the registration area, which comprises over 80 per cent of the population of the entire country. A distribution of these accidents by the more important causes follows.

³ Report of committee on public accident statistics, Public Safety Section, National Safety Council, Sept. 28, 1921.

⁴ Copies of this casualty list will be sent to members of the National Safety Council or to educators upon request to headquarters.

TABLE 3.—*Fatalities in continental United States during 1919.*

Cause.	Males.		Females.	
	Number.	Rate per 100,000.	Number.	Rate per 100,000.
Automobiles.....	7,372	13.77	2,407	4.77
Trains.....	6,878	12.85	881	1.74
Falls.....	6,503	12.15	1,070	2.14
Construction.....	6,302	11.78	916	1.78
Domestic accidents with consumption.....	3,314	6.19	1,588	3.02
Miners.....	2,686	5.03	1	.00
Electricity.....	2,483	4.64	414	.81
Marine.....	2,446	4.57	144	.28
Defective machinery.....	2,417	4.52	1,139	2.21
Clashes with locomotives.....	2,145	4.01	384	.75
Street cars.....	1,875	3.50	487	.95
On foot while crossing streets.....	1,359	2.54	324	.63
All other causes.....	9,640	18.06	2,636	5.12
Total.....	55,420	103.94	20,125	39.12
Total, 1914.....	58,701	111.24	18,438	38.10

Combining the male and female deaths shows the principal causes arrayed as follows:

TABLE 4.—*Fatal accidents in United States (1919), male and female combined.*

Cause.	Number.	Rate per 100,000 population.
Falls.....	11,873	11.31
Automobiles.....	9,851	9.46
Trains from collisions.....	7,902	7.60
Trains.....	7,773	7.40
Construction.....	7,218	6.98

An analysis of fatal accidents in the United States for one week ending August 28, 1920, shows that the following were the more important causes of death:

TABLE 5.—*Causes of fatalities in the United States for week ending August 28, 1920.*

Cause.	Males.	Females.	Persons killed.	Total.
Automobiles.....	299	74	373	111
Trains from collisions.....	284	33	317	95
Drownings.....	121	11	132	40
Falls.....	55	17	72	22
Street railway.....	51	9	60	18
Marine.....	39	—	39	12
Construction.....	36	3	39	12
Trains from collisions.....	33	21	54	16
On foot while crossing streets.....	299	30	329	100
Total.....	1,004	198	1,202	356

The relative importance of some of these causes varies with the seasons, and their order of supremacy is not typical of the entire year. For example, for the whole year 1919, falls were first, auto-

mobiles second, and burns third; for the week ending August 28, 1920, falls were fourth, automobiles first, and burns as far down as the eighth.

Preeminent among the preventable causes of death stands the automobile. In 1915, there were 2,445,664 automobiles registered in the United States, which caused approximately 5,900 fatalities. In 1920, with 9,211,295 automobiles in use, the number of deaths mounted to about 10,640. These figures exclude the fatalities which occurred as the result of collisions of automobiles with heavier vehicles, such as railway engines and street cars. Such fatalities represent about 7 per cent of all other automobile fatalities; therefore a complete estimate of the automobile deaths in the United States for the year 1920 reaches the alarming figure of 11,358. The attached curve (Fig. A) shows the trend in the automobile death rate since 1912.

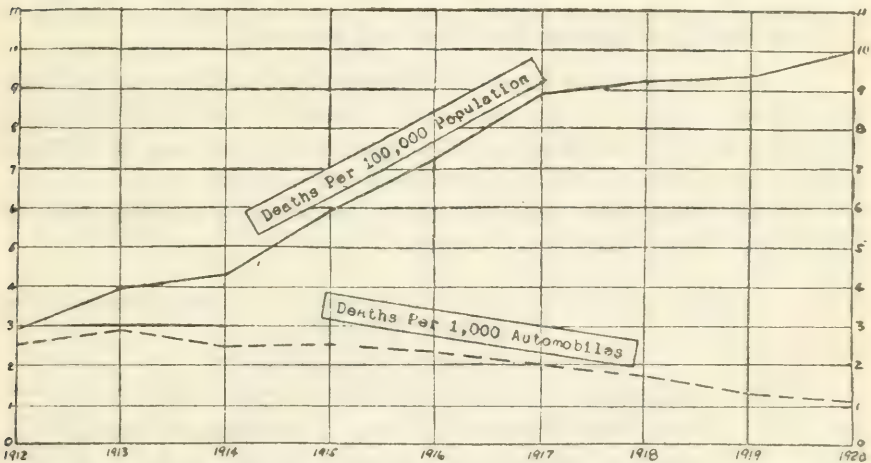


FIG. A.—Deaths from automobile accidents in the registration area, 1912-1920.

These estimates for 1920 are made possible by statistics on automobile fatalities for 62 cities of the United States, which are summarized in the following table. The assumption was made that the percentage of increase (1920 over 1919) shown for the 62 cities was approximately the same as for the rest of the country.

TABLE 6.—Automobile fatalities in 62 cities of the United States.

[Rate per million population.]

Year.	Population.	Fatalities.	
		Number.	Rate.
1915.....	23,317,162	1,831	78.5
1916.....	24,982,727	2,321	96.8
1917.....	24,508,032	2,044	124.2
1918.....	25,033,352	3,444	157.6
1919.....	25,560,244	3,561	139.3
1920.....	26,086,355	3,880	148.7

It is significant to note that while the automobile death rate has greatly increased during the past six years, the fatality rate from other types of vehicles has steadily declined. The following table shows the facts:

TABLE 7.—*Highway vehicular fatalities in 35 cities of the United States, 1915-1920.*

(Rates per million population.)

Year.	Population.	Automobile.		Street car.		Railroad.		Other vehicles.		All vehicles.	
		Number.	Rate.	Number.	Rate.	Number.	Rate.	Number.	Rate.	Number.	Rate.
1915.....	15,860,800	1,274	80.3	550	35.2	800	54.2	304	25.1	3,096	194.2
1916.....	16,206,450	1,565	96.6	688	41.2	1,057	65.2	407	30.7	3,717	231.7
1917.....	16,552,800	2,057	124.3	785	47.4	1,078	65.1	388	23.4	4,298	261.2
1918.....	16,897,100	2,230	137.9	787	46.6	1,014	60.0	388	21.2	4,490	265.7
1919.....	17,244,398	2,468	143.1	576	33.4	728	41.9	265	15.4	3,937	234.8
1920.....	17,591,038	2,670	151.8	515	29.8	714	40.6	214	12.2	4,123	244.4

Excludes bicyclists, but includes trolley, motor cycle, and airplane.

During this six-year period the automobile fatality rate in these 35 cities increased 149 per cent, while street-car fatalities showed a decrease of 15.3 per cent, railway fatalities a decrease of 25.1 per cent, and "other vehicles" a decrease of 52 per cent.

The following table goes into more detail concerning the type of vehicle involved in traffic accidents:

TABLE 8.—*Highway vehicular fatalities in 32 cities of the United States during the calendar year 1920.*

(Based on million population. Population 1,000,000.)

Vehicle involved.	Number.	Rate.	Per cent of all vehicles.
Automobile.....	2,670	155.0	65.6
Street car.....	515	29.8	15.4
Railroad.....	714	40.6	17.2
Tractor-trailer.....	1	0.0	0.0
Tram car.....	1	0.0	0.0
Other highway vehicles.....	728	41.9	17.8
All other vehicles.....	15	1.4	0.5
All vehicles.....	5,843	346.8	100.0

The National Workmen's Compensation Service Bureau has made an interesting analysis of collision accidents sustained by automobiles insured against damage to themselves. Collision between two vehicles caused most of the accidents.

TABLE 9.—*Analysis of collision accidents.*

Car collided with—	Number of accidents.	Per cent.
Roadbed.....	153	2
Curbing.....	282	4
Ditch or embankment.....	178	2
Building (on entering or leaving same).....	555	7
Another vehicle.....	3,580	60
Any other object.....	1,879	24
Upsets without prior collision.....	26	.6
Unknown.....	12	.4
Total.....	7,665	100.0

In connection with automobile accidents, it should be stated that the variation of motor-vehicle laws between States, and even more so between municipalities, is confusing and often dangerous to the pedestrian and motorist alike. For example, the minimum age for drivers for 37 States of the Union varies from 14 to 18 years, while in the remaining 12 States there is no minimum age requirement. Some States examine all applicants for driving licenses, but other States do not even require motorists to obtain licenses.

Nearly all State laws make provision for the suspension and revocation of licenses for just causes, but many States are lax in enforcing that portion of the law. In contrast is the excellent work of the Massachusetts examining and investigation department, which during 1919 suspended 1,013 licenses and revoked 856. There must be closer cooperation between police departments and motor-vehicle commissions, so that traffic laws may be rigidly enforced and the violators thereof adequately punished.

There were approximately 11,900 deaths from falls in the United States in 1919; 6,500, or 54.6 per cent, being males, and 5,400, or 45.4 per cent, being females. An analysis of 5,928 personal falls made by the Oregon State Industrial Commission for the period 1916-1919 shows the six leading causes to be:

TABLE 10.—*Analysis of personal falls.*

	Per cent.
Slipping, stumbling, tripping.....	33.4
Scaffolds, stagings.....	15.8
Poles, trees.....	6.5
Runways, platforms, etc.....	5.4
Ladders.....	5.2
Floor openings.....	5.2

The ordinary mortality experience of the Prudential Insurance Co. for 1916-1920 showed 516 deaths due to falls, of which number 249, or 48.3 per cent, are classified as home accidents; 124, or 24.0 per cent, as public accidents; 59, or 11.4 per cent, as industrial accidents, and 84, or 16.3 per cent, are not specified. A summary of the

Prudential's industrial mortality experience for the period July 1 to December 31, 1920, shows 572 fatal falls, distributed as follows: Home, 194, or 33.9 per cent; public, 85, or 14.9 per cent; industrial, 134, or 23.4 per cent; not specified, 159, or 27.8 per cent.

Drowning causes a comparatively greater number of deaths among males than females. Of the 7,218 fatalities in 1919, 6,302, or 87.3 per cent were males and 916, or 12.7 per cent were females. The following table shows the trend of drowning accidents for the five-year period, 1915-1919:

TABLE 11.—Deaths from drowning in the United States (estimated from United States census reports on the registration area).

Year.	Males.	Females.	Total.
1915.....	8,117	1,533	9,650
1916.....	7,795	941	8,736
1917.....	6,612	830	7,442
1918.....	6,196	945	6,951
1919.....	6,302	916	7,218

The number of deaths due to drowning varies, of course, with the seasons. Drowning ranked fifth among the causes of death during the entire year 1919, but was third in importance during the week ending August 28, 1921.

Some interesting information on railroad accidents may be gleaned from the Accident Bulletin of the Interstate Commerce Commission. From the following table it appears that of the total number of persons killed only about 4 per cent were passengers, whereas over 51 per cent were employees:

TABLE 12.—Railroad accidents in the United States.

Year.	Total number of persons killed.	Passengers killed.	All employees killed.	Other persons killed.	Total estimated loss.
1917.....	210,720	300	3,348	6,540	10,087
1918.....	193,832	471	3,393	5,322	9,286
1919.....	193,840	300	2,601	5,776	8,677

About one-fifth of all the above casualties were due to highway grade-crossing accidents as follows:

TABLE 13.—Highway grade-crossing accidents in the United States—Persons killed.

Year.	Motor vehicles.	Total persons killed.	Transportation or person struck by				
			Private motor.	Automobiles and trucks.	Trolley cars.	Other vehicles.	Animals.
1917.....	2,071	3,000	334	1,103	17	—	—
1918.....	2,094	2,873	461	1,111	20	241	—
1919.....	2,368	2,134	575	1,212	7	468	—

A summary of the elevator accidents in the United States, reported by the public press for the period of January, 1913, to July, 1918, shows 978 fatalities and 1,386 nonfatalities, distributed as follows:

TABLE 11.—*Summary of elevator accidents.*

	Fatalities.		Nonfatalities.	
	Number.	Percent.	Number.	Percent.
Public.....	407	41.6	569	41.1
Semipublic.....	36	3.7	27	1.9
Industrial.....	528	54.0	779	56.2
Not otherwise classified.....	7	0.7	11	0.8
Total.....	978	100.0	1,386	100.0

This table clearly shows the importance of the elevator as a cause of public accidents. The ordinary mortality experience for the Prudential Insurance Co. shows a total of 28 deaths by elevators for the period 1916-1920. Of these, 14 are classified as public accidents, 12 as industrial, 1 home, and 1 not specified.

The following table shows the public elevator accidents distributed by cause:

TABLE 15.—*Public elevator accidents distributed by cause.*

	Fatal.		Nonfatal.	
	Number.	Per cent.	Number.	Per cent.
Fell into shaft from landing floor, or due to motion of car.....	150	36.85	121	21.3
Crushed between car and sill of landing floor or frame of door.....	150	36.85	107	18.8
Accident occurred inside of shaft.....	96	23.60	330	58.0
Not otherwise classified.....	11	2.70	11	1.9
Total.....	407	100.00	569	100.00

Experience compiled by the Industrial Commission of Wisconsin shows the following for the period January, 1915, to July 1, 1920:

TABLE 16.

	Fatal.	Nonfatal.
Falls into shaft from floor or from car.....	8	77
Crushed between platform and car, or between platform and gate, or between side and gate.....	7	149
Accidents occurring in shaft.....	5	112
Not otherwise classified.....	6	85
Total.....	26	451

These facts point out that a large proportion of the fatalities occur at the shaft door, and that comparatively few can be attributed to broken cables, falling cars, hoisting machinery, and so on.

Data compiled from newspaper clippings of aircraft accidents for the year 1920 show a total of 49 accidents, involving 59 deaths and 29 injured. Of those killed 35 were pilots and 24 passengers. For the first 6 months of 1921, 40 accidents were reported, with 14 fatalities and 52 injuries. An analysis of the 40 accidents occurring in 1921 shows that 17 of the number were due to poor piloting, and that 10 were due to poor fields or the lack of proper landing places.

The rapidly increasing popularity of the airplane promises a new menace to the public. This has been demonstrated time and again, as, for example, when a Navy seaplane side-slipped to the beach at Pensacola, Fla., on March 2, 1921, and killed five bathers.

(B) SCHOOL LOSSES RESULTING FROM ACCIDENTS.

Statistics have not been compiled to show the actual time lost from school as a result of accidents to school children that do not result fatally, but we do have accurate statistics from the registration area of fatal accidents to school children, and we can estimate the economic loss caused by them. In round numbers there are 15,000 school children killed each year through accidents. The expense involved in the education of a school child is about \$40 per year for the whole country. This would make, in round numbers, \$600,000 as the financial loss for one year. In taking as an average five years' attendance on the part of those children who are killed in accidents the cost of tuition would amount to approximately \$3,000,000 annually from deaths of school children alone.* This is the estimated loss in the cost of instruction to the Nation for children who never grow to adulthood. The amount is therefore a total economic loss.

As noted above, this loss does not involve other losses due to non-fatal accidents, which result in retardation of school work, the loss of time, and medical cost, and, furthermore, none of these figures account to any degree for the misery and suffering produced by the nonfatal as well as by the fatal accidents. However, from the money standpoint alone the numbers are serious enough to justify an effort on the part of educators to reduce accidents through school instruction.

(C) THE POSSIBILITY OF REDUCING ACCIDENTS THROUGH EDUCATION.

Later in this bulletin data will be presented showing the results of education in accident prevention, in the reduction of accidents to school children, and also to adults in the community where safety education is carried on. It is well to note here, however, under the need for education in accident prevention that school instruction reduces accidents. It is also well to note that any effective achieve-

* See the basis of the computation, see *School health administration*, by Rapson, p. 31.

ment in the reduction of accidents must be brought about through educational endeavor.

(D) THE FUNCTION OF THE SCHOOL.

The trend of modern education is distinctly in the direction of placing emphasis upon the development of controls in the individual as the aims of educational endeavor. The purpose of education is to make society more effective in carrying on its work, and to insure the individual the most adequate adjustment to the social life of which he is a part. Obviously, the large number of accidents and deaths in every community warrants the school in seeking to develop controls that will protect the child of to-day and the adult of to-morrow against the hazards of the complex life of a modern American community. We have come to regard as one of the functions of the school and of instruction that of developing means of protecting the children against the adverse conditions of life, whatever they may be. In other words, we are concerned with the health of the child, with his bodily vigor, and his safety; therefore, from the point of view of the theory and practice of education there is vital need of safety instruction.

(E) COMPLEXITY OF MODERN LIFE.

The need of education in accident prevention is further emphasized by the complexities of modern life into which the children are thrown virtually without equipment to meet it. We are hardly aware until we are made conscious of the fact that the hazards of modern society have developed so rapidly that neither children nor adults are equipped to meet them.

The recency of the development of present-day hazards is realized at once when they are enumerated. Aside from industrial accidents, resulting from machinery mostly of nineteenth century origin, the railroads, street railways, electricity, gas, and the automobile cause the major accidents and 90 per cent of the total. Each of these has become a necessity of society within the past generation. Railroads, to be sure, had their origin in the first half of the nineteenth century, but the maximum building period came within the last quarter of the nineteenth century and the period of operation and serious accidents within the twentieth century. The successful operation of street railways by electricity did not culminate until the nineties, and the period of operation lies within the twentieth century. The use of gas as an almost universal necessity has been achieved in the twentieth century, and the famous national automobile race won in Chicago, in 1896, with a car that made the remarkable record at that time of 6 miles in an hour shows how recent is this juggernaut that

accounts for 12,000 souls and millions of property each year in the United States. The first deaths from automobiles occurred in St. Louis in 1907, and the death curve has rapidly risen since that time.

The point of this discussion is no doubt obvious. These conveniences of man that have become the common necessities of life are of so recent development that we have not acquired the experience of protecting ourselves against them and of utilizing them without involving the welfare of others. It is not merely the reckless driver of automobiles that causes accidents, but it is the careful driver with ignorant pedestrians, and the speeder who causes accidents to careful pedestrians and children. It is ignorance, generally, in every case.

There are two ways, moreover, of meeting this situation. First, we may simply let the matter go until by a process of trial and error through three or four generations we shall have learned how to handle these necessities of life without danger to ourselves and others. We shall learn from experience the methods of protection, but, in the meantime, other inventions will have taken the place of these now in use or have supplemented them, and the slaughter will go on. Second, we may make a study of the cause of accidents and begin a systematic plan of education—the only practicable method of their elimination. The purpose of this bulletin is to point the way to an intelligent handling of the accident problem in this country.

II. METHOD OF PROCEDURE IN ACCIDENT PREVENTION AND ITS JUSTIFICATION.

The preceding discussion has indicated the serious nature of the accident situation in this country and the need of education to bring about a satisfactory condition. The fact that education has proved to be necessary in the case of industrial accidents convinces us that the problem of public accidents cannot be solved without an adequate educational program. The analysis of public accidents presented in this discussion indicates the causes as viewed objectively, but after all we must seek the cause of accidents in the people, in the individuals to whom accidents occur. Modern civilization demands a heavy traffic upon the streets; it demands that modern conveniences be utilized; it demands that mechanical devices be conserved and made use of to lighten the burden of man and to provide the comforts that will afford more time and leisure for the enjoyment of the products of civilization. So far as we can see, there is no tendency to lessen the number of inventions that will make a more complex civilization and create a larger and larger number of industrial and public hazards.

Therefore, the problem of accident prevention is one necessarily of education. The causes of accidents lie fundamentally within the

individual. There are three fundamental causes of accidents, and their discussion will illustrate fully how completely the reduction of accidents depends upon education. The first of these causes inheres in the original nature of people seeking to find expression in a complex environment to which, by the very character of its origin and development, it is not suited.

(A) INHERITED TENDENCIES—A CAUSE OF ACCIDENT.

We have already shown in some detail that the present-day public hazards are of so recent origin that most of them were unknown to the middle-aged man of to-day when he was a child. This fact makes it necessary that we not only redirect the native tendencies of the present day, but that we redirect the whole social life to meet these new conditions; but more upon this point later. The important point here is that children are born with a variety of instincts that are unsuited in the original form of expression to the conditions into which they are born. For instance, the child has at the very source of his life and the foundation of his existence the tendency to play. It is through play that the child develops his physical organism, that he acquires and organizes his experience, that he adjusts himself to his fellows, and that he builds up his ideals and attitudes toward life. But in the complex life of the city to-day the child can not well exercise this fundamental function of nature without danger of extinction. The mother, burdened with the responsibility of children and household duties, sends the child out into the yard to play. Soon another child appears on the other side of the street, or the ball with which he is playing flies across to the other side of the street. Regardless of the admonition of the mother, the child darts across the street and into the path of a speeding automobile with disastrous results. Or suppose the child, exercising his instinct to climb in the city, comes into contact with the live wire; the result is fatal. Thousands of accidents happen each year to children in the United States from the exercise of these and other instincts, and yet we can do away with neither the automobile, electricity, nor other hazards so essential to human welfare. We *can* provide children, however, with places to play and teach them to use these places.

(B) BAD HABITS—THE CAUSE OF FATALITIES.

A second cause of accidents lies in bad practices, common to Americans, and resulting from the fact that our practices, which are formed into habits in each succeeding generation, are the result of living under rural conditions in the simple relations of the nineteenth century. An illustration is in point. During the year 1920, in the city

of St. Louis, 75 per cent of all the street accidents occurred at other places than at street intersections. In spite of the fact that perhaps not 5 per cent of the population persist in crossing the streets without regard for their own welfare, this large proportion of accidents is the result of the bad practices of this small per cent. The reason is obvious. These accidents do not result from a desire of people to rush into danger, but the anxiety of the American business man or the desire of the laborer to get to his destination in the quickest time, causes the man to select the most direct route, regardless of others. With his mind intent upon his objective, he looks neither to the right nor to the left, but follows the lead of habit, with dire consequences to himself. This illustration serves as a type of cause of accidents that is very common at the present time and against which safeguards can only be provided by the development of new habits, that are appropriate to the necessities of the complex life of the modern community, in the people of to-day, and particularly in the children of the schools. The development of these new habits is a matter of education.

(C) IGNORANCE—A CAUSE OF ACCIDENTS.

A third cause of accidents is ignorance. We had bemoaned the amount of illiteracy found upon examination for the American Army, but the number of illiterates is small compared with the number of persons who are ignorant of the causes of accidents and the means whereby accidents are prevented. A recent accident in the neighborhood of my activities illustrates this point. A man of good education, satisfactory position, constantly employed, industrious, with a family consisting of a wife and several children, whom he supported well and kept in school, left home happy and contented and went to his place of employment, put in a good day's work, and was returning to his home to greet his happy wife and children. A wire hung dangling over the sidewalk. With nothing more profitable to do, he grasped it and was instantly killed. The same sort of ignorance accounts for a thousand deaths in the United States every year.

In fact, the three causes enumerated are responsible for all accidents, whether they result from the instinct of daring that creates the reckless driver of an automobile, from the careless handling of machinery, or from the thousands of social contacts that result fatally in the course of a year. Furthermore, the only way to effect changes in these conditions is through education. This may be carried on through the press, from the platform, or in the schools. The effective means is through school education. This not only reaches the child and builds up in him the necessary controls during his plastic period of growth, but the intensity with which these

experiences take hold of childhood brings the instruction into the homes and reaches adults. In fact, it is one of the most vital and fundamental functions of the school to make these particular changes in childhood. Thus the school may provide for a new and ever increasing complexity of social life and civilization.

IV. THE NECESSITY FOR ANALYSIS OF THE ACCIDENT SITUATION IN EACH COMMUNITY AS A BASIS FOR SCHOOL INSTRUCTION.

While there are certain general causes, such as those just presented, which are responsible for accidents, no community can go forward with a program of instruction without a careful analysis of the specific causes within that community which wishes to undertake the program. For instance, instinctive tendencies, bad habits, and ignorance are the fundamental causes of accidents, but the particular forms in which these conditions express themselves are not the same even in different sections of the same city. One section of the city may be congested so that there is scarcely a place for the children to play except in the streets. The problem of education is totally different there from what it is in another part of the city where there are plenty of places to play and street traffic is not a factor. On the other hand, the hazards that cause accidents in general throughout the United States, such as the automobile, electric current, gas in its various uses, railroads, street railways, and the like may be present in different degrees even in different sections of the same city, and may differ widely in different cities or in the country. Moreover, the problem of education in accident prevention with reference to these problems and the necessity for emphasis may be wholly different.

An example will make clear my meaning. A careful analysis of the accidents from public utilities in St. Louis showed that 40 deaths and a thousand more or less serious accidents occurred to children between the ages of 6 and 16 years, in the three years 1917-1919. These accidents were caused by the street cars, electric lighting and power companies, and steam railways. Further analysis showed that the accidents resulted from stealing rides on street cars, from skating or playing in the streets, from contact with live wires, and from playing on railroad tracks—four causes in all. The causes of these accidents to children did not apply equally to all parts of the city. In some cities and in rural communities these causes may not be present at all. These data are convincing. They demand that specific studies of the causes and remedies in each community be made as a basis of instruction for the purpose of eliminating accidents, or for the purpose of securing vital ma-

terial as a basis of motivating instruction. I should like to make an analysis of two types of accident, for purposes of assisting other communities in the preliminary studies as a basis of accident instruction. I shall make the analysis under two heads—namely, school accidents and public accidents.

(A) SCHOOL ACCIDENTS.

Any plan for the elimination of accidents, as pointed out above, whether these accidents be public or industrial, before being put into operation must be carefully preceded by an analysis of accident data. Such analyses have been made generally in industrial plants, but little study has been made of public accidents and nothing up to the present time, with the exception of this study, has been attempted in a large way with reference to accidents to school children. The present study, therefore, attempts to present a careful analysis of accident statistics, fatal and nonfatal to children in the city of St. Louis. Later we shall present conclusions as to right procedure based upon these data.

TABLE 47.—*Accidents in grade schools, September, 1918-January, 1920.*

Number of accidents.	Number of accidents.	Population.	Per 1,000.
1	6	300	10.0
1	8	500	11.4
2	36	4,000	7.8
5	36	4,000	7.1
6	25	4,000	6.3
122	228	100,000	2.3

Up to the present time no adequate data of accidents to school children not under school supervision are available except the statistics of fatal accidents which can be obtained at the coroner's office. Statistics of accidents to children on the school premises and going to and from school are to be had.

TABLE 48.—*Accidental deaths of children of school age, 1917, 1918, 1919, 1920.*

[Population by school district.]

Number of accidents.	Accidents per school.	Schools (1920).	Accidental population (1920) (school age).	Per 1,000 (1920) (total pop.).
6	6	6	300	6.7
1	8	1	500	5.5
2	36	10	4,000	7.8
5	36	10	4,000	7.1
6	25	10	4,000	6.3
122	228	100	100,000	1.2

TABLE 19.—*Accidental deaths, children of school age.*

(Distribution by causes.)

Cause.	1917	1918	1919	1920	Total.
Automobile.....	14	17	15	16	62
Street car.....	8	1	6	1	16
Wagon.....	3	2			5
Railroad.....		1	1		2
Burns.....	8	5	8	2	23
Firearms.....	4	2	3		9
Drowning.....	3	2	4		9
All others.....	10	6	9	1	26
Total.....	50	36	49	20	155

It will be noted that there is a wide difference in the number of accidents occurring in the various high schools. This fact is further shown in Figures B and D.

It can be asserted that there is evidence of no significant difference of conditions that would cause this discrepancy in accident statistics.








There is, to be sure, **A**  **34**
a difference in the environment of these
B  **24**
various schools, such
as would offer us
dissimilar accident
C  **11**
hazard. For in-
D  **8**
stance, school B, is
situated in a neigh-
borhood which offers
E  **4**
much greater hazard
than any other be-
cause of street con-
F  **2**
gestion. But the
causes of accidents
G  **1**
do not show that the
street environment

FIG. B.—Accidents in high schools (represented by letters on left), September, 1918-January, 1920.

has anything to do with the number, character, or seriousness of accidents. Schools E and G contain fewer pupils than the others; one is a school for colored children and the other is a junior high school. This fact is significant in making the comparison. With these exceptions in mind the schools may be compared with the fact in view that environmental conditions do not affect the results. Therefore the wide variation in the number of accidents is due to the difference in the attitude of mind and the habits of the children themselves. It is the result of a difference in home education and attitude which has not been largely affected by school training. The data, then, are symptomatic of a situation that can be changed only through educational endeavor.

The conclusions drawn from data presented for the high schools are equally true of the grade schools. The environments of the grade schools vary widely, and if all other conditions were equal, there would be a much larger number of accidents in some districts than in others. But actually the environmental conditions are not the vital factor at all. Table 17 and Figure E are for the grades.

These records show the accidents in 122 elementary schools. It will be noted from the charts relating to the grades that there are "core spots" in which the number of accidents is large. Seventeen schools of the 122 report nearly one-half of the accidents. This can

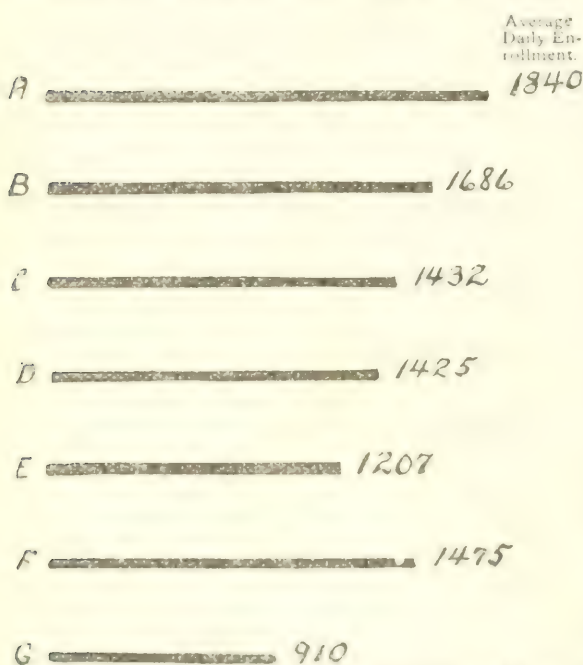


FIG. E. PERCENTAGE IN HIGH SCHOOLS (EXPRESSED BY LETTERS).
— 50%.

not be explained on the ground of outside conditions, as was indicated above, although outside conditions do affect the number of accidents to a degree. The history of one school is in point. This school has had systematic instruction in accident prevention for two years, and not a single accident has occurred in the school, on the grounds, or on the way to and from school. Not a single fatal accident has occurred to a child living in the district.

This district, moreover, is one that is most unfavorably situated in so far as the environmental conditions are concerned. Three lines of street cars run through the district. One of the most congested streets in the city lies in the district. Automobile thoroughfares pass through the district in various directions, and most of the railroad lines coming into St. Louis skirt it on one side. Here then is evidence that instruction in accident prevention may be effective regardless of the social environment, by creating the right habits and attitude of mind. It may be said further that this same district showed a high record of fatal and nonfatal accidents before instruction in accident prevention began. This district is typical of a few where accident instruction has been carried on for several years.

(B) ANALYSIS OF PUBLIC ACCIDENTS IN ST. LOUIS, JANUARY TO MAY, 1922—FOUR MONTHS.

Analysis of accident statistics is necessary as a basis of instruction and as a means of providing the causes and conditions for those who are to give the instruction, namely, the teachers. Therefore, an analysis of the accidents in St. Louis for the first four months of the year 1922 is presented.

This analysis will illustrate how indispensable it is to have such data for any effective work. Table 20 presents a comparative statement for the period extending from January 1 to April 30, in the years 1920, 1921, and 1922, and the statistics for the month of April, 1922. These data show at once just what the situation is at present and what our problem is in comparison with that of former years. More important, however,

is the specific difficulty at the present time. From the point of view of reduction the statistics are favorable except for automobiles, drowning, and asphyxiation. The serious condition at the present time lies in automobiles, burns, drowning, falls, street railway, and asphyxiation. The table which follows explains itself:

Per 1,000 population

A ————— 18.4

B ————— 14.3

C ————— 7.7

D ————— 5.6

E ————— 3.3

F ————— 1.4

G ————— 1.1

FIG. D.—Accidents in high schools (represented by letters on left) in September, 1918–January, 1920.

TABLE 20.—Comparative statement of fatal accidents, all causes; January 1 to April 30, 1922, as compared with same periods 1920 and 1921.

Causes.	1920	1921	1922	April, 1922.
Automobile.....	32	28	41	14
Burns in the homes.....	16	15	11	4
Drowning.....	1	1	5	4

TABLE 20.—Comparative statement of fatal accidents, etc.—Continued.

Causes.	1921	1922	1923	1924
Heard on	1	4	9	9
Public	12	24	32	6
Industrial	17	16	1	1
Street	1	1	1	1
Street	6	6	5	1
Electrification	1	1	1	0
Amphibious	0	1	3	4
Overload	9	1	2	0
Motor cycle	1	2	9	9

The next table relates specifically to the age and sex of the killed:

TABLE 21.—Analysis of deaths from automobiles for the first four months of 1924 (St. Louis), sex and age.

Male	23
Female	15
Total number of deaths	41

Schools	Accidents per 1000	Ages of killed.	
1	10.	Under 5	6
		6-10	1
		11-15	2
		16-20	2
		21-25	1
1	11.4	26-30	2
		31-35	3
		36-40	1
		41-45	1
5	7.8	46-50	5
		51-55	4
		56-60	3
		61-65	4
5	7.1	66-70	4
		Over 70	4
5	6.3		
122	2.3		

FIG. 12.—Deaths of 11 grade subjects, September, 1918—January, 1920.

Table 21 indicates that more males are killed than females. These data conform to the statistics gathered for the United States as a whole, and result

from the fact that there are more men on the streets and that they are more careless than women. The ages at which the accidents occur are significant. Twenty out of 41 deaths occurred to persons over 30 and 6 were children 5 years or younger. Only 3 children of elementary-school age were killed. This indicates the effectiveness of school safety instruction. The following table is instructive:

TABLE 22.—*Classification of 41 automobile deaths according to kind of vehicle, driver, and cause.*

Kind of vehicle:		Cause of accident:	
Passenger	25	Speeding	5
Truck	9	Careless driving	25
Unknown	8	Crossing in middle of block ..	9
Accident while owner was driving ..	32	Coasting in the streets	2
Accident while chauffeur was driving	9		

Table 22 hardly needs an explanation. The fact that 25 passenger cars caused fatal accidents and that 32 of the accidents occurred while the owner was driving indicates that recent purchasers of cars are concerned in these accidents. This fact is further accentuated by the fact that 30 of the accidents were caused by speeding or careless driving. On the other hand, the fact that nine persons were killed while crossing at places not designated for that purpose shows that the pedestrian is not educated to carefulness. Again, the fact that only two children were killed from their own fault, namely, coasting in the streets, indicates that the schools have performed their work effectively.

Two items of interest concerning these fatalities do not appear in the tables. Ninety per cent of the fatalities occurred outside of the congested districts and 45 per cent of them occurred between 4 and 8 p. m. These facts imply that the accidents occur after the children have reached home from school and are playing in the streets, and as the adults are going home from their work or business. The fact that passenger cars caused the accidents accentuates these conclusions.

This analysis of accidents would not be complete without including data relating to nonfatal accidents. These data not only emphasize the vital significance of a sensible accident prevention movement and the necessity of safety education, but also that the real problem involved for the teacher is the development of a safety consciousness in the children through school instruction. I shall present four tables giving the number and kinds, the causes, the time, and the time of injuries of nonfatal accidents in St. Louis for April, 1922.

TABLE 23.—*Accident statistics for month of April, 1922.*

Number of highway accidents of all kinds	920
Number of automobile accidents	821
Number injured in automobile accidents	244
Number injured in motor-cycle accidents	10
Number injured in bicycle accidents	7
Number injured in horse-drawn vehicle accidents ..	7
Number injured in street-car accidents	15
Number of fatalities from automobile accidents ..	14
Property damage	\$45,121

TABLE 24.—Classification of causes of accidents per month of April, 1922.

Cause.	Personal injuries.	Number of persons injured.	Total.
Causes not determined.....	26	102	128
Causes given as unknown.....	3	2	5
Exhausting.....	6	43	49
Exceeding one-way width of street.....	5	6	11
Failure of vehicles to track.....	5	9	14
Mechanical defects.....	8	21	29
Causes prohibited.....	4	0	4
Causes directed.....	41	308	349
Auto passing street car while discharging passengers.....	6	0	6
Backing away from curb without giving signal.....	2	10	12
Backing vehicle without giving signal.....	1	2	3
Changing without giving signal.....	0	1	1
Changing without giving signal.....	0	0	0
Changing without giving signal.....	0	0	0
Driving without lights.....	0	0	0
Highway law.....	1	3	4
Incompetent driver.....	17	26	43
Pushing against in street.....			
Total.....	106	737	843

TABLE 25.—Time of accidents (April, 1922): personal injuries.

12- 1 a. m.	1	1- 2 p. m.	10
1- 2 a. m.	5	2- 3 p. m.	15
2- 3 a. m.	1	3- 4 p. m.	10
3- 4 a. m.	6	4- 5 p. m.	15
4- 5 a. m.	4	5- 6 p. m.	12
5- 6 a. m.	2	6- 7 p. m.	10
6- 7 a. m.	7	7- 8 p. m.	2
7- 8 a. m.	8	8- 9 p. m.	3
8- 9 a. m.	13	9-10 p. m.	0
10-11 a. m.	25	10-11 p. m.	1
11-12 a. m.	11	11-12 p. m.	0
12- 1 p. m.	14	Total.....	103
1- 2 p. m.	18		

TABLE 26.—No personal injuries: of the various periods of the day.

12- 1 a. m.	0	1- 2 p. m.	40
1- 2 a. m.	20	2- 3 p. m.	30
2- 3 a. m.	7	3- 4 p. m.	30
3- 4 a. m.	23	4- 5 p. m.	30
4- 5 a. m.	20	5- 6 p. m.	70
5- 6 a. m.	31	6- 7 p. m.	35
6- 7 a. m.	20	7- 8 p. m.	35
7- 8 a. m.	30	8- 9 p. m.	30
8- 9 a. m.	35	9-10 p. m.	30
10-11 a. m.	43	10-11 p. m.	30
11-12 a. m.	50	11-12 p. m.	0
12- 1 p. m.	50	Total.....	535

I wish to conclude this analysis of accidents with emphasis upon the statement made at the outset: that is, the purpose of its presentation is to illustrate how any community must proceed if it wishes to

attack the problem of carelessness intelligently. I believe that every reader is convinced that accidents are unnecessary, and that the remedy for the condition is adequate education. It is furthermore clear that the schools play the most fundamental rôle in the elimination of accidents. The next problem is to present the method by which accidents may be prevented through school instruction.

V. THE METHOD OF EDUCATION IN ACCIDENT PREVENTION.

Up to this point we have been largely concerned with data which illustrate the necessity of an adequate program of school instruction in accident prevention. It would seem that the statistics so far presented would convince anyone that safety instruction should become a vital part of the school curriculum. This was the conclusion to which we came after a thoroughgoing investigation of the statistics. The war with its demand upon the school children of America taught us the value of utilizing social objectives, namely, the sale of Liberty bonds, thrift stamps, patriotic appeals, and the like, as a means of arousing interest in the conventional subjects. We discovered, moreover, the value of a sound motive as a means of stimulating interest in school work. We had found through the necessity of the situation during the war that we could teach children more of the conventional subjects than we had been able to without the stimulus that comes from the large social interest in a vital community and national problem. This discovery suggested that a new motive might be found in the fatalities and loss of property that goes on year after year and far exceeds the losses of war—the accidents of the country. But could this material be organized and presented in connection with the conventional subjects? An examination of the subject matter of the curriculum soon convinced us that such was possible and that every subject in the curriculum has numerous situations that lend themselves to the development of habits, knowledge, and ideals of safety.

The method, therefore, of education in accident prevention is to secure the social result of reducing accidents by utilizing those situations which naturally develop in history, geography, drawing, English, and the like. These situations are used to create a consciousness of safety that will protect the children against the hazards of the complex life of the community. An adequate discussion of the method of making safety instruction a part of the curriculum has been presented and does not need further discussion here.⁶

⁶ See *Education in accident prevention*, by E. George Payne. Published by Lyons & Carnahan, New York and Chicago.

The plan outlined is simple enough and is in line with our present-day educational endeavor. The plan involves two distinct aspects, each designed to serve a specific purpose in the elimination of accidents: First, the instruction in safety, as a part of the daily studies, as suitable situations arise; second, the organization of the school into a safety council or league with adequate committees for the promotion of safety work. The principle for the basis of school safety is that the school shall become conscious of itself as an organization in the community and assume for itself the problem of making its own community safe. This consciousness may also be just as definite with reference to health, thrift, or other social necessities as it is with reference to safety. When a school organization once begins to plan for its own welfare, it takes on new life and becomes conscious of its power and its opportunity as a unit for service; thus its committees assume responsibility for the little folks as they cross the streets going to and from school and for teaching carefulness on the playground and in the school neighborhood. The school is thus creating a welfare consciousness that makes all its little citizens individually interested, not only in the actions of its own immediate environment, but in that of the city as a whole. The children are thus acquiring training in citizenship that goes far beyond the immediate purpose for which the children's safety council and activities are created.

(A) AN EXPERIMENT IN THE RECONSTRUCTION OF THE CURRICULUM.

The materials presented here are the results of an experiment in education in accident prevention, carried out in the Harris Teachers College and the Wyman Observation School as a part of a program of educational reconstruction. The point of view from which we are studying education is social, and we are attempting to reconstruct the curriculum on social grounds. The purpose is, on the one hand, to ascertain the kinds of social needs the individual has while in the school and when he leaves the school for a place in society outside of the school environment. This demands a knowledge of the situations to which the individual must adjust himself. On the other hand, it is our purpose to discover the habits, skills, attitudes, points of view, and ideals concerning these social situations that should be developed in the child by means of the curriculum during his school career. For instance, by a study of society and its demands upon the individual going out from school, we find that it is necessary that he possess certain habits, skills, ideals, attitudes, and so forth, relating to the health, emotional fitness, civic duties and responsibilities, accident prevention, thrift, and so forth, if he is to be an effective unit in

the social organization. It is our purpose to develop these ideals, habits, skills, and attitudes through curricular instruction.

The experiment in teaching accident prevention, then, is merely one effort of many in process to reconstruct the whole elementary school curriculum from the point of view of the needs of the individual as a social unit. The dominant motive in this experiment is threefold. First, to combat the serious menace to human welfare of the constantly increasing number of serious public and industrial accidents. During the period of the war, when fewer than 70,000 fatalities occurred from wounds and sickness in the expeditionary force of more than two million men in France, practically twice that number of people were killed in avoidable accidents in the United States. During this same period, when fewer than 300,000 persons were wounded in the war, about three million persons were injured from accidents in the United States, most of which might have been avoided. Every school district in the United States shares these accidents. These statistics suggest that the problem of accidents is one that must be considered by the teacher and school administrator.

Second, as pointed out above, the material and situations available in accident instruction afford unusual opportunity for providing motive in the work in English, history, civics, arithmetic, ethics, and, in fact, all the subjects of the curriculum. These situations are familiar to the child and touch his life in such a vital way that nothing we have found is more valuable in arousing his interest and activity. The curriculum may be greatly enriched by this additional subject matter. The need of accident prevention and the desirability of creating attitudes and ideals about accidents, both as a community and individual need, provide unit situations through which may be taught most successfully English, history, reading and, in fact, all the subjects in the school curriculum.

Third, the subject matter of accident prevention helps to make possible the use of the project method in the presentation of the various subjects. Since the teacher must seek actual situations through which she expects to develop skills, ideals, and attitudes, all the work becomes actual projects to the child. It furthermore socializes the educational processes.

These objectives afford, then, the motive for this experiment. The result of this experiment has been the introduction of teaching of accident prevention into the curriculum of our schools. An important element in the experiment was the determination of the place of accident instruction in the curriculum. When the need of instruction in accident prevention was sufficiently felt for us to undertake accident instruction, the first problem was to seek to carry it out

without the addition of a further burden to the already congested curriculum. Our first step, then, was to give our attention to the problem of the introduction of this additional subject matter. Upon examination of the curriculum we found that the subject matter of the regular curriculum could be more effectively taught through the use of accident situations. The following examples will show how the subject matter has been connected with social situations so as to give meaning to regular curricular instruction and to arouse the child to the point where he can feel the vital nature of the regular subjects.

READING LESSON.

The assignment.—The reading of articles in the newspapers and magazines bearing on accident prevention selected from any source within the experience of the child.

Preparation.—The child is to read as widely as possible from these sources in order that he may select the best example of a description of an accident in order that he may read it to the class for the purpose of leading the class to avoid such an accident themselves. Also, his purpose is to make such an impression upon the class from his reading that the members will vote to include the selection read in a scrapbook to be put in the library for future classes and for the use of the school.

Recitation.—The children read their respective selections with force: the class discusses the merits and defects of each and finally votes to include or not to include the selection in the scrapbook for the library.

Objectives.—First, the pupil acquires the habit of reading the types of material that every citizen should know how to read intelligently. Second, in the class discussion the pupil develops the capacity for the exercise of critical judgment toward material found in newspapers and magazines. Third, the pupil gains a great deal of social information in the preparation of his particular lesson. Fourth, under the impelling motive of influencing the class through his selection and of preserving his selection for future classes, the pupil acquires skill in reading, in interpretation, and in proper manner of presentation. Fifth, the pupils actually participate in a social function and acquire skill and habits in such matters. Sixth, the pupil acquires knowledge, attitudes, and ideals concerning the prevention of accidents.

UNIT LESSON.

Assignment.—Notice and read the daily newspapers for one week and clip all the news concerning coroner's court's activities. The class selects a committee to visit a coroner's court and hear an inquest. All pupils find from parents, friends, or any other source all possible in-

formation concerning the history, purpose, function, and general effectiveness of the coroner's court and inquest in their city.

Preparation.—Follow the assignment.

Recitation.—Report of the committee. A discussion of the nature, function, purpose, and effectiveness of the coroner's court. Children participate freely in the discussion and read any of their clippings that they think particularly pertinent. The court and its functions are regarded mainly in relation to the prevention of accidents.

Objective.—First, knowledge of an important social institution. Second, participation of the class in a social exercise in the selection of a committee to perform a social function for the class. Third, the establishing of habits in the children of reading newspapers carefully and critically. Fourth, new points of social contact and interests. (NOTE.—One boy discovered the need of magazines for prisoners in the local jail and formed a club of school children to supply them.) Fifth, the class selects representatives to present any vital information in the form of four-minute speeches to other classes in the school. Thus they learn a new social responsibility and acquire a valuable skill in public speaking on vital matters.

ARITHMETIC LESSON.

Assignment.—Gather data on accidents in city and make problems from the statistics.

Preparation.—Put the statistics into tables, make graphs and problem solutions. The following problems are some of those constructed by a seventh-grade class and will show how the pupils are led to find and interpret important social statistics in their daily exercises:

1. The number of deaths by accident in St. Louis in 1916 was 525. In 1918 the number was 464. How much was the number decreased in 1918? What part was it decreased?

2. There were 510 people killed by accidents in St. Louis in 1917; 75 of these were children under 10, 48 were from 10 to 20 years. What number beyond the age of 20 were killed in 1917?

3. Six thousand children under 10 years of age were killed by accident in the United States in 1917. If this number could have been reduced by 10 per cent by "safety first" how many would have been saved in 1918?

Graph solutions of accident statistics are frequently drawn by pupils to enable them to acquire a knowledge of the kind of statistics and their interpretation that they will need to be acquainted with in their daily life.

Recitation.—Placing problems upon the board, and the discussion of the solution and the ways of handling such statistics.

Objective.—First, the acquisition of skill and judgment in the handling of important social statistics. Second, knowledge of accident conditions in the community and Nation. Third, knowledge of the different methods of arithmetical solutions. Fourth, skill in computation and in handling statistics. Fifth, knowledge of sources of statistics and ability to gather those statistics and interpret them.

ENGLISH LESSON.

Assignment.—Description of accidents I have seen, or of imaginary avoidable accidents.

Preparation.—Discussion in class of the various accidents seen by members and accidents imagined, emphasizing the important elements in the story and the points of emphasis. The children are to think over their stories and tell them to their little friends for practice.

Revision.—Oral composition. Description in clear English of an accident within the experience of the child. A free discussion and criticism of the presentation by the class. A selection by the class of pupils to present their stories to other classes in the school.

Objective.—First, ability to stand before a group of fellows and make a speech. Second, power of oral English expression. Third, consciousness of accident situations. Fourth, proper attitude toward accidents in the community.

DRAWING LESSON.

Assignment.—The selection of a street crossing or other accident situation for a drawing lesson.

Preparation.—Discussion of the situation and a determination of the points of emphasis as a class exercise.

Revision.—Drawing the accident situation under the supervision of the teacher. Discussion by the class of the drawing and the selection of drawing for displaying in the school, on the bulletin boards, and in the halls.

Objective.—First, making the children conscious of the situations that cause accidents. Second, increasing one's drawing ability. Third, new sense of social obligation in drawing to influence the members of the school against accidents.

These are merely typical lessons that have been carried out in the upper grades. It will be noted that each lesson, although the point of emphasis is drawing, English, arithmetic, civics, and so forth, actually afford exercises in all other subjects. Each lesson is an exercise in civics, English, drawing, and so forth.

(B) DRAMATIZATION.

The second means of giving accident instruction as a part of the curriculum is through dramatization and pantomime. This is usually regarded as a part of the language work, and it affords fine opportunity for language practice. In the dramatization the children usually select some dramatic incident connected with an accident, construct their play, and present it as a part of a classroom exercise. The pantomimes usually attempt to reproduce accident situations, but by the introduction of the proper means of safety, the accident is prevented. This form of educational endeavor lends itself so admirably to the development of safety intelligence and attitudes on the one hand and to skills and knowledges in the use of the mother tongue on the other that I wish to devote some space to a concrete illustration of how dramatization is used.

I am presenting here a play which was acted by the boys of the Webster School, St. Louis.⁷ It illustrates how language and accident prevention both may be taught.

Before presenting the play it is necessary to explain that St. Louis has a Junior Safety League consisting of boys from 12 to 18 years of age. A part of their activities is to bring together 3,500 boys once a month on Saturday morning at one of the local theaters for a safety program. At this meeting there are speeches, plays, pantomimes, and the like by the children themselves: speeches by adults: and safety motion pictures. It was one of these meetings that inspired the following play constructed by the children and presented to the school for the purpose of impressing the pupils with the need of safety as they had come to feel it:

WHY DICK BELIEVED IN SAFETY FIRST.

(A play for boys of the sixth, seventh, and eighth grades. Time of performance about 20 minutes.)

CHARACTERS.

Frank.	
Tom.	
George.	
Careless Dick.	
Drummer boy.	
Captain of Safety League.	
Ten members of Safety League.	(These may include Frank, Tom and George.)
Charles (Dick's older brother).	
Jack.	
Police officer.	
Walter.	} Older boys with changed voices.
Mr. Wilson.	
Three other boys.	

⁷ Contributed by Clara Broemmelsick, head assistant in Webster School, St. Louis, Mo.

SCENE I. A city street.

Frank. That was a mighty narrow escape Dick had just now.

Tom. It surely was; and unless he is brought to his senses, he'll meet with a terrible accident one of these days.

George. If he had been killed, he would have had only himself to blame, for the driver of the truck warned him to stay off. As usual, Dick waited his chance and jumped on again.

Frank. And, of course, the driver of the car coming from the other direction couldn't see Dick when he jumped off. It was a miracle that he wasn't killed. Here comes Dick now.

(Enter Dick, excited and breathless.)

Dick. Hello, fellows! Gee! I thought I was a goner that time! But I had a ride all right! I left Sam and Harry jumping away back there, and they're not in sight yet.

Tom. Yes, but really, Dick, it was only sheer luck that you are alive to tell the tale. I'd rather walk than run the risk you did.

Dick. Aw! that's all right for girls—not for me! I take chances all the time, and I never was hurt yet. So long, boys.

Others. So long, Dick.

George. Here come Jack and Dick's brother, Charles. I wonder where they've been.

(Enter Jack and Charles, talking to one another.)

George. Hello, boys! What's your hurry?

Charles. Why, hello! we were so busy talking we didn't see you. Jack and I have just come from a meeting of the St. Louis Junior Safety Council at the Fox-Liberty, and I tell you, we're all excited about it. Really, it's a great thing for St. Louis, and Jack and I were just discussing how we might form a Safety League among the boys of the Webster School.

Tom. Good! and let me suggest that you get your brother Dick to join first of all. He just had another of his hairbreadth escapes.

Charles. You don't say so! That boy keeps the whole family worrying all the time, especially mother. She hasn't a moment's peace until he is safe in bed at night. Well, we're in earnest. Aren't we, Jack?

Jack. Indeed we are! We'll get as many boys as we can to join our Safety League. But it's time to go home now.

George. We'll walk home together and you and Charles can tell me all about your plans.

(Exeunt.)

SCENE II. A week later. Twelve boys (with music, including a drum) members of the safety League, march in led by a drummer boy and accompanied by the captain of the band. Each of the 12 boys wears a piece of white chalk, bearing one of the following letters: S A F E T Y L E A G U E. They march in the following order across the stage: S A F E T Y L E A G U E, and march along with the drummer, "Halt" is given by the captain who stands on the right side of the stage while the drummer stands on the left.

Captain. Halt!

Drummer. And who are we? we have you say.

Band. And you shall march without delay.

Captain. Attention! One, two, three!

(The drummer changes positions as follows.)

Original position—S A F E T Y L E A G U E

1 2 1 2 1 2 1 2 1 2 1 2

At the command "One," the 1's step back one step and the 2's step one step right, thus:

A E Y E G E
S F T L A U

At the command "Two," the 1's step one step to the left, and the 2's stand still, thus:

A E Y E G E
S F T L A U.

At the command "Three," the 2's step forward one step, thus presenting from left to right the words, SAFETY LEAGUE.)

Leaguers. To the Safety League, we all belong.

And why? We'll tell you in our song.

Leaguers. (Singing to the air of "A Merry Life," in the *Laurel Music Reader*.)

Some think the streets were made for boys to play in,

Oh my! Oh my! Oh my! Oh my!

In spite of warnings their own yards to stay in,

They will not try, they will not try.

But we'll try to make them see their error—

The time is nigh, the time is nigh;

For all the accidents fill us with terror.

And make us sigh, and make us sigh.

Listen, listen, to what we have to say;

Listen, listen, you'll have to mind your way.

Keep off the streets, keep off the streets,

Keep off the streets, keep off the streets,

List, my friends, now mend your way

This day, this very day.

First Leaguer. You know I never realized how careless people were until I joined the Safety League, and now I am on the lookout for such careless action. (Several of the boys relate incidents showing how children were hurt on account of carelessness. Get these from newspapers.)

Second Leaguer. Nearly all the boys of rooms 1 and 2 have joined the Safety League, and we ought to be able to help in preventing accidents.

Third Leaguer. Yes, but we haven't succeeded in persuading careless Dick yet, and he's the worst of them all. The little boys look upon him as a hero, and think it is smart to do as he does.

(Enter police officer.)

Officer. Hello, boys! What's this? A circus parade?

Fourth Leaguer. No, officer. Look at us and tell us what you think of us. (All stand up proudly erect.)

Officer. S-A-F-E-T-Y. That spells *Safety*, doesn't it, boys?

Boys. Yes, officer.

Officer. Now, what's that other big word? L-E-A-G-U-E. It's been a long time since I've been to school. I'm afraid you'll have to help me out.

Smallest Leaguer. Oh ho! That spells *league*, officer.

Officer. So it does. Safety League! Well, that sounds fine, but what do you do besides parade?

Fifth Leaguer. We help little children across the street.

Sixth Leaguer. We warn the older ones to cross at the crossing.

Seventh Leaguer. And not to jump on wagons and trucks.

Eighth Leaguer. And not to play in the streets.

Ninth Leaguer. To look both ways before crossing the street.

Officer. Well, well! It looks as though they won't be needing me much longer. I'd better be looking for another job.

Captain. No, indeed, officer; we need you to help us right now. Perhaps you don't know the little fellow they call Luck? We can't make him see the necessity of being careful, and he laughs at us whenever we try to persuade him to join our league.

Officer. I see; you want me to persuade him, do you? Well, I'll see what I can do. That's the young rascal there, isn't he? (*Pointing to the back of the hall.*) By the way, I saw him barely escape with his life last Saturday after stealing a ride on a truck. I'll have a talk with the young man.

Captain. Thank you, officer. I believe that will do more good than anything else. Good-by, sir.

Officer. Good-bye, boys. Keep up your good work. (*Exit police officer.*)

Captain. And before we go let us repeat

Just how we all should cross the street.

Leaguers. (*Turning heads sharply to left, then right.*)

Look to the left, then look to the right:

And if no vehicle is in sight

Go straight across (*pointing straight in front of them*) and do not
helter

Or stop in the middle to reconnoiter.

Captain. Forward, march! (*Drummer leading all march off.*)

SCENE III. The same afternoon in Dick's home. Dick is seated at a table studying. His brother Charles is reading.

Dick. I can't do this old problem! It's a scoundrel you couldn't help! Tell me, Charles. What's the trouble, Dick?

Dick. Trouble? There's a whole lot of trouble. What do I care how much it costs to fence a farmer's field? I'll never be a farmer anyhow. And what do they make a fellow learn grammar for? I don't see a bit of use in it.

Charles. You're in a beautiful humor. I think you'd better go to bed now and get up early in the morning and study.

Dick. You'd be in a beautiful humor, too, if everybody was picking on you.

Charles. Picking on you? Why, what do you mean, Dick?

Dick. Well, think to you and Jack, none of the boys will play with me because I won't join their old Safety League. And somebody's been carrying tales about me to the police officer near the school. I don't know they haven't. Anyway, I don't believe he can take me to the police station for loitering on my own back.

Charles. So you've been at your old tricks again, have you? Really, Dick, something worse than going to the police station is going to happen to you if you are not more careful. Well, hurry and get your studying done, and get to bed.

(*Exit Charles. Dick leans back in study and soon falls asleep.*)

SCENE IV. Dick's dream. Enter policeman, Charles, Mr. Witson, Jack, Walter, and several others, about eight in all, representing boys whose fathers have changed and who run away in air. Dick seated at table in center of stage, head on table asleep. Other boys arranged on either side. Policeman. (To him.) Be broad! Be broad! Be broad! Many's the time I warned him of his carelessness. And now he runs off as a result of it.

Charles. No. Any accident may be made here, but he will never with me. You know! If he had only listened.

Mr. Wilson. Only last week he darted right out into the street in front of my car, and only with the greatest effort did I avoid hitting and perhaps killing him. It unnerved me for the rest of the day.

Jack. If we had only kept at him to join our Safety League, it might not have happened. But we all thought he would see his folly and join of his own accord.

Walter. Yes; it's too late now to save Dick, but this shows us all the more how necessary the work of our Safety League is.

Leaguers. (Singing to the air "A Merry Life.")

He thought the streets were made for him to play in,
 Oh my! Oh my! Oh my! Oh my!
 In spite of warnings his own yard to stay in
 He would not try, he would not try.
 And we, we tried to make him see his error
 When we were nigh, when we were nigh;
 For all the accidents filled us with terror,
 And made us sigh, and made us sigh.
 We begged him to listen to what we had to say.
 We warned him that surely he'd have to mend his way.
 But all in vain, but all in vain.
 But all in vain, but all in vain;
 And now, poor boy, he'll have to stay
 In bed for many a day.

(Walk off stage as they sing the last two lines.)

(Enter Charles.)

Charles. (Shaking Dick to wake him up.) Well, of all things! You not in bed yet? Why, it's after 10 o'clock.

Dick. (Bewildered.) Why, I thought, I thought——

Charles. Well, silly, what did you think?

Dick. O Charles! I had a dreadful dream. I dreamed I had been run over by a truck, and both my legs were cut off, and I could never walk again.

Charles. A pleasant dream that was! Well, anyway, it isn't true, so hustle off to bed.

Dick. (Rising and feeling his legs.) Gee, but it feels good to know you're not dead or crippled or anything! Say, Charles, I think I'll join your Safety League before my dream comes true.

Charles. (Slapping Dick on the back.) Good boy! Dick, that's the way to talk. And now go to bed and pleasant dreams!

(Exeunt Dick and Charles.)

SCENE V. *City street, as before. The members of the Safety League march in again with their captain and drummer boy, Dick, in the middle, carrying the slogan: "I BELIEVE IN SAFETY FIRST." The command, "Halt!" is given. Leaguers sing, pointing to Dick.*

Leaguers. (To the tune of "We Won't Go Home Until Morning.")

Now what do you think of our leader?

Now what do you think of our leader?

Now what do you think of our leader?

We're very proud of him.

For Dick's a jolly good fellow!
 For Dick's a jolly good fellow!
 For Dick's a jolly good fellow!
 That nobody can deny.

Dick. Thank you boys. And hereafter, you may depend on me to work for the Safety League; but you'll have to promise not to call me *Careless Dick* any more.

All. We promise.

Captain. Attention!

All. Safety League, Safety League, Safety League, onward!
 Out of the crowded street
 March the half hundred.

Captain. Forward the Safety League!

First Leaguer. "Charge for the wall," he said.

All. Safe from the crowded street

Marched the half hundred.

Captain. Forward, the Safety League!

Second Leaguer. Knew my boy partner?

All. Not though each leaguer knew

What was before him.

Third Leaguer. Thinks not to make reply.

Fourth Leaguer. Thinks not to reason why.

Fifth Leaguer. Thinks to make others try.

All. Safe from the crowded street

To join the half hundred.

Sixth Leaguer. Motion bars in sight of them.

Seventh Leaguer. Heavy trucks to left of them.

Eighth Leaguer. Street cars in front of them.

Barred and hindered.

Ninth Leaguer. Watched they the traffic man

and thus, you see, no time they had.

All. Safe from all accident

Safe on their way they went.

Marched half hundred.

Tenth Leaguer. When will the world be safe

For every little homeless child?

All. In the world nowhere

Just hand us back a hand!

Our little Safety Band!

Careful half hundred.

A "SAFETY FIRST" PROJECT IS THE TEACHING OF LANGUAGE.

Explanatory note.—This project, a "Safety First" campaign, as it is here discussed, is intended primarily for seventh and eighth grade classes. However, it could be adapted and used in any of the eight grades of the elementary school. The time necessary for the project would depend upon the time the teacher wishes to give to it, ranging from 4 days to 5 or even to weeks. It need not be carried on continuously but at selected times or during a safety campaign or drive.

This project was suggested by Mrs. Grace Rydell, of the Training School of the Denver Grammar College.

I. AIMS.

A. *Language*: To furnish the pupils opportunities to gather together and organize worth-while material and to express themselves orally and in writing upon a series of related subjects within the range of their experience and interest.

B. *Social*: To cultivate a safety consciousness, which will guide their actions and create a desire to spread the teachings of safety to others so that the accident toll may be decreased.

II. METHOD OF PROCEDURE.

A. *Work preliminary to project.*

B. *Oral reports based on newspaper clippings.*

The first 10 minutes of the daily language period is taken for oral reports of accidents based on items in the newspapers. Two pupils report a day, each pupil in a class of 40 having an opportunity to make a report about once a month. The "reporters" scan the papers of the day for notices of accidents, read these through, and prepare to give a clear, concise account of the accident before the class. The class spends a few minutes discussing it. First, they try to determine upon whom the blame rested and how the accident could have been avoided; then they offer criticisms of the report from the standpoint of the English used and the manner of delivery. The clippings from the newspaper are then turned over to a class secretary, who dates them and files them. When the scrapbook is begun, these clippings are grouped according to the kind of accident and arranged in the book as a record of the year's accidents.

C. *Short speeches prepared to spread the teachings of safety to the other children of the school.* (Since the types of accidents to children vary slightly with the seasons of the year, the character of the talks would also vary. This plan uses late spring as the starting point.)

First lesson: Classroom discussion, led by teacher's questions of accidents that often happen to children during spring and summer, and summary by list of these causes.

Possible ways children may meet with avoidable accidents during spring and summer:

Running from the sidewalk into the street without looking to see whether an automobile or other vehicle is coming.

Bicycle coasting in the streets.

Playing baseball in the street.

Roller skating in the street.

Carelessly playing on the apparatus in a playground.

Stealing rides on moving vehicles.

Playing with firearms in camp.

Careless swimming and diving.

Careless behavior in rowboats, canoes, and the like.

Careless horseback riding.

A discussion follows of what we might do to prevent the children of our schools from being injured or killed during spring and summer, arriving at conclusion that short talks, teaching the children what to do, appealing to them to follow the advice given, should be prepared and given at opportune times to the other rooms.

Assignment of topics to members of the class.

Reading a model talk.

Making outlines.

Second lesson: Presentation and criticism of talks by the pupils preparatory to offering them to the teachers of the other rooms. (Model talks composed by children given at end of this plan.)

III. THE PROJECT TALKS.

First lesson: A discussion of the best way to organize and keep this safety material in a usable and convenient form, for a "Safety First" scrapbook. Contents (see end of plan for material for models):

1. Rhymes—*Michie Goose*; *Humricks*; couplets and four-line poems, and less of poems.

2. Original slogans, pledges, creeds, etc.

3. Stories—Based upon personal experience; allegorical; stories from given date.

Suggestions:

1. A lighted match dropped carelessly: A family without a home.

2. A stone thrown carelessly: A boy with only one eye.

3. *Literature*—Suggestion: Work of St. Louis Automobile Club; work of chamber of commerce; work of police department; industrial safety; safety devices and safety education.

4. *Talks*—Appeals to children and to gatherings of adults; first-aid demonstrations and explanations.

5. *Imaginary or real conversations.*

6. *Costumed plays, tableaux, and pantomimes.*

7. *Reports based on newspaper clippings*—Clipping; statement of kind of accident; statement of cause of accident; statement of cost of accident; statement of responsibility for accident; and statement of how accident could have been avoided.

8. *Miscellaneous newspaper and magazine clippings pertaining to safety.*

9. *Letters*—To children in school and in other schools in the city and elsewhere, and to parents.

10. *Records of personal observation*—In the home, in the school, and in other places, such as the street, public places, and factories.

11. *Locations*.

12. *Pictures, cartoons, posters, etc.*—Original (to be drawn in drawing class).

13. *Graphs, made in arithmetic class.*

14. *Problems, made and worked out in arithmetic class.*

Planning—an number of scrapbooks to be made, selecting captions and placing names on the work.

Group discussion of model plans.

Following lessons: A series of oral and written English exercises suggested by contents of scrapbook; oral exercises to be written after being presented; all written work to be corrected and copied on the loose-leaf pages of the scrapbooks, leaving permanent records. (Alphabets, poems, graphs, etc.) to be kept in large folders.

Final lessons on organization and assembling of material into scrapbooks.

The safety scrapbooks, in formal readings to other classes at opportune times; safety week and every hour; to furnish plays to be given for entertainment and enlightenment of parents and children; and to be given the school library to be used by future classes.

THE FOLLOWING MATERIAL WAS COMPOSED BY CHILDREN IN SEVENTH AND EIGHTH GRADES.

1. *A story based on a personal experience.*

RUTHINE'S RECKLESSNESS.

"Oh, Ruthine, you must not dive from there: it is too shallow," shouted Judith from the bridge.

But Ruthine turned to Juanita and said, "Oh, Judith Clay thinks she is 'it.' I shall dive off now just for spite."

"But Ruthine," said Juanita, "you know it is dangerous here." Ruthine had already dived off the rock. The two girls watched her in dismay, as she sank, rose, and then sank again. "Ruthine," shouted Judith. But no answer came. The water was getting red, while Ruthine had gone under. "Judith, she has hit her head on a rock," said Juanita, "let's go in after her." Splash! They jumped into the water and in about two minutes they came up dragging Ruthine with them. A thin stream of blood came trickling down her forehead, dyeing her face and hair a dull red. They laid her on the soft grass and began resuscitation. All three girls belonged to the Girl Scouts, and so they knew what to do. In about a half hour Ruthine was all right except for the wound on her head. They started home and Doctor Redmond said that Juanita and Judith had done a brave deed.

2. *Too much play turned out to be carelessness.*

One day Mother went out and left me in charge of the house. Before leaving she told me to be sure to have dinner ready when my father came home. "All right, Mother, I will come in when it is time to get dinner, but now I want to play."

I had too much play in my head; so I forgot about dinner. When I did think of it, it was 5:15, and Daddy gets home at 5:30. I rushed into the house and got the potatoes and started to peel them and put them on.

Our gas range has five burners, and I lighted the first two. I reached over to light the two back ones and I burnt my arm.

When Daddy came home he saw how I was suffering and put some medicine on it. Later Mother came home, and said it was pure carelessness and I hadn't thought the least of safety.

3. *Allegorical story.*

CAREFULNESS IS THE BEST LEADER.

Once upon a time there was a mean monster called Carelessness, who had many enemies. The one he hated most was Carefulness, a beautiful spirit, kind to Everyboy and Everygirl. Many hard battles were fought over Everyboy and Everygirl, but Carefulness was always victorious. Why? She won because right always conquers wrong.

One day Everyboy thought he would go skating. He got his skates and started off. Soon he heard a voice say, "The street is better. The street is better." Everyboy stood thinking. Suddenly a bright thought came to his mind—he would stay near the gutter and nothing could hurt him. Just as he was about to step down, he heard another voice say, "Your life is more. Your life is more." Everyboy was lost in thought. Which voice should he mind—the voice of Carelessness or the voice of Carefulness? At that moment Everygirl appeared and related to Everyboy how a little child had fallen victim to a large machine while he was skating in the street. Then Everyboy recalled the whispering sounds he had heard and resolved hereafter to follow the advise of Carefulness.

A FEW SUGGESTIONS FOR CONVERSATIONS.

1. Two boys are discussing the question of where to go roller skating. One suggests the street, the other a playground near by. Each gives his reason for choosing the place he names.

2. Two girls are standing on a busy downtown street corner. In answer to the first girl's questions, the second girl explains the use of the traffic policies man, and the zones, and how to cross a downtown street safely.

3. A city girl explains to her little visiting friend from the country how to get on and off a street car and reach the curb in safety.

4. Two boys decide to go swimming. One suggests a quarry near by and gives his reasons. The other proves to his friend that the municipal bathing beach is better.

5. Two boys are walking down the street. One makes a run to catch the window bars of a passing trailer. He is stopped by his friend, who proves to him that this is very dangerous fun.

1. *Rhymes.*

(1)

Dark gave Jill
A little pill
He found upon the floor.
Poor little Jill
Because of the pill,
And now she is no more.

(2)

Mary had a little "bike,"
All painted white and red.
She took it in the street-car track,
And now poor Mary's dead.

(3)

Goosey, goosey, wander,
Whither shall I wander?
North, south, east, or west,
Where shall I wander?
"If you should enter just where you will,"
The goose at once replied,
"What road to take, what turn to make,
Use Safety for your guide."

2. *A conversation.*

A SAFE SKATING PLACE.

"Oh, pshaw, I don't see why we can't stay here and skate," argued John. "See it's too dangerous," said Jack. "Why can't we go down to the playground? It's only two blocks away."

"Well, anyone could see the street is the better skating place, and we can deliver our own more stunts on the streets," replied his friend.

"Now, John, you know as well as I do that the street is the place for wagons and we have no more right to play on their street than they have to drive on our playgrounds; and then even if we are, as you say, able to take care of ourselves, we set a bad example for smaller children who aren't able to."

(C) ORGANIZATION OF CHILDREN IN SCHOOL AND IN THE COMMUNITY AS A MEANS OF TEACHING SAFETY.

The third means of teaching accident prevention is through the organization of the children in the schools themselves and through a larger organization of the representatives of the various schools in a community assembly. The method here given is to regard each room as a safety council when matters of accident prevention are considered. Each room has its various committees elected by the children themselves, for the purpose of safeguarding the welfare of the room. From each room in the school, usually from the second grade up, the children send representatives, generally a boy and a girl, to

a meeting of representatives of the whole school. This group is the safety council of the whole school and has the general welfare of the whole school in hand. The council has committees for safeguarding the street crossings in the school neighborhood, putting out street signs, reporting and correcting the unsafe conditions in the community and the careless actions of the children in the schools or on the streets.⁹

The school organization can not have its greatest effectiveness unless backed up by a larger group of children from the whole city who come together for information and inspiration at periodic times. This type of organization is provided by the Junior Safety Council of the city. This safety council should be made up of representatives of every school in the community, private, parochial, and public. The St. Louis organization comprises about 2,000 representatives, captains, and lieutenants, who meet once a month. The larger organization naturally can not function as a deliberative body as it is too large. In St. Louis the Junior Safety Council, whose members are called Junior Safety Cadets, selected a board of governors of 25 members and a legislative assembly of about 200 members, consisting of one representative from each school. The board of governors and the legislative assembly outline the policy of the organization, prepare the program, and exercise control generally of the monthly meeting.

The size of the monthly meeting is limited naturally by the capacity of the auditorium. As was pointed out above we are able to crowd in about 3,500 and the capacity of the house is always taxed. We will perhaps convene a meeting of some 10,000 children in our municipal open-air theater for two large meetings in the year, one in the spring and one in the fall. In smaller communities, or in places where the facilities are not available, a smaller meeting will have to suffice. The meeting offers momentum, enthusiasm, and inspiration, however, in proportion to its size, and should be as large as possible.

Furthermore, it is wise to have this organization brought together under the leadership of the local safety council affiliated with the National Safety Council, for then the group has local and national backing. If no local branch of the National Safety Council is organized, then the Rotary Club or some similar organization may function in this relation. In any case, the chairman of the adult committee in charge of the boy organization should be a man of prominence and influence in the community.

I do not need to again emphasize the importance of such an organization of boys, and a similar organization of girls, in the development

⁹ For full discussion of the organization of school children, see *Education in Accident prevention*, ch. 7, and *Education in health*, ch. 12.

of civic virtues in the community. The schools have discovered the value of the organization in developing leaders in the school, in training in school loyalty, and in creating a feeling of community responsibility. The universal testimony is that nothing has been so effective in this direction in the school life of the city of St. Louis. This brief description will appeal to the imagination of educators, and they can adapt the specific organization to the needs of their community. The important thing is that the organization become a permanent one, and that its actual direction be in the hands of the children themselves.

VI. THE RESULTS OF EDUCATION IN ACCIDENT PREVENTION.

The demand for the measurement of pupil progress in the various subjects of the curriculum by an adequate objective standard is recognized in every progressive school system at the present time. In many of our schools throughout the country, standard tests have become as much a matter of routine as exercises in arithmetic and language. The program of measurement does not, in general, however, attempt to go beyond the determination of intelligence and achievement along conventional lines. For instance, with the exception of a health scale¹⁰ no attempt has been made to measure the results of instruction in the habits and practices along the line of citizenship, home relationships, health, accident prevention, and the like. While the results of education in health and accident prevention can be measured partly in a scientific way, like some of the results of instruction in the conventional subjects, they can not be fully determined by the scales and standards we now have available.

An examination of the results of instruction in any field requires a fundamental consideration: viz, the aim of that instruction. For instance, the aim of a lesson in history may be to acquire some specific knowledge about a period or movement in national development, but along with that aim and fundamental to it would be the acquisition of an attitude toward the facts learned, and an understanding and appreciation of the meaning of the period or movement in our national life. The same purpose would be present in an arithmetic lesson. We may wish to instruct a child in the number facts of insurance, but we are more concerned with its social importance, with its relation to him and its value for him as an individual. Furthermore, we wish not only to have this knowledge but a certain attitude that will make him act differently in his social and individual relationships. Specific objectives of this kind of a very

¹⁰ See *Object and Procedure in Health and Accident Prevention* by E. George Farrow, published by the Farrow-Peterson Publishing Co., Washington, D. C.

complex variety are sought as a result of instruction in every lesson and every subject.

Regardless of the aims of the teacher, however, with reference to the purposes of the learning of the child, each child appropriates according to his own experience the subject matter with which the teacher is dealing in his own way and each differently according to his own nature and experience. Therefore, certain attendant results of instruction are inevitable. It should be noted also that the attendant results of instruction are quite as important and often more important than the direct outcomes. For instance, the teacher may be intent in a reading lesson upon improving the technique of reading, either silent or oral. But the child may be acquiring ideas and attitudes about material read that would affect him in a much more fundamental way than the mere improvement in reading ability itself. He may be acquiring a like or dislike for literature that will lead him to pursue the subject further on his own account or give it up altogether. He may form associations that will inspire him to greater efforts, or he may decide that the whole business is futile. These attendant or concomitant ideas and attitudes are generally much more significant than the knowledge of any conventional subject matter itself.

In the evaluation of the results of instruction in accident prevention, we need to take account of the attendant results, as well as the direct result in the saving of human lives. When we come to examine the curriculum to discover the situations that lend themselves to creating a consciousness of carefulness and controls that will protect the child against the hazards of modern society, we must at the same time ask ourselves what are going to be the concomitant or attendant results of using these situations in our instruction. These facts force us to consider the results of instruction in accident prevention from a much larger point of view than that merely of saving human lives. We need to consider the results of instruction in accident prevention under three heads and should like to have the merits of the instruction judged by them. We should like to show the value of accident instruction in the development of interest in school work, in the development of civic ideals, and in the reduction of accidents.

A. THE RESULTS OF INSTRUCTION IN ACCIDENT PREVENTION IN AROUSING INTEREST IN SCHOOL WORK.

One of the greatest values that can come from safety instruction is the result in arousing interest in school work and providing motive for the mastery of conventional subject matter. Teachers generally

express the feeling that nothing has been so powerful in arousing interest in school work. This question is well handled in an article in *School and Home Education*, May 20, 1920, which we give here in full.

TEACHING ACCIDENT PREVENTION IN THE GRADES AS A MEANS OF MOTIVATING LANGUAGE WORK.

Miss Grace H. Ryffel has presented in a very concrete way a study of the accident prevention work in the Wyman School and how it may serve to motivate language and stimulate interest in oral and written expression. Much discussion has taken place as to means of motivation; and the Harris Teachers College, using the Wyman School, has been experimenting on the whole problem of the reconstruction of the curriculum with definite social objectives in view. The aim has been twofold: To arouse a deeper interest in the work of the children themselves; and to secure more definite results in the curricular instruction. This discussion is a definite contribution to the literature of this problem.

The teachers of the Wyman School in St. Louis, an observation school of the Harris Teachers College, began some time ago an experiment in teaching accident prevention in connection with the regular curriculum. They were delighted to find that accident material could be easily used in the teaching of arithmetic, drawing, civics, geography, reading, and language. The children became enthusiastic, and the interest in safety teaching spread from the kindergarten to the eighth grade. The teachers found that the children were unslaking so much a safety consciousness that the results of the teaching were carried outside the classroom.

The following is given to illustrate how readily accident prevention can be taught through the language work. During 4 weeks in one seventh grade class, the teacher took 10 minutes from a 40-minute daily language period to hear oral reports of accidents recorded in the newspapers. Two pupils reported a day, and each individual in a class of 40 had an opportunity to make a report about once a month. The reporter scanned the papers of the day for notices of accidents, read these through, and prepared to give a clear, concise account of each accident before his class. The work began as soon as the class assembled, each reporter being allowed 5 minutes. After a report had been given, the class spent a few minutes discussing it. First, they tried to determine upon whom the blame rested and how the accident could have been avoided; and, second, the pupils offered criticisms of the report from the standpoint of the English used and the manner of delivery. The clippings from the newspapers were then turned over to a class secretary who filed them and filed them chronologically. A scrapbook was made of these and given to the school so that future classes might make a comparison of the accidents of 1920 with those of succeeding years.

Four weeks' time is enough to induce the children's interest in this work. I need only say that at the end of the time they were just as interested as they were on the day they began. Let me have a few incidents growing out of this work to show the nature of the value. A report on an accident, in which a child was injured while falling into the street on a sled, raised this question: "Is there a law compelling automobile drivers to sound their horns in the middle of a block upon seeing a pedestrian or child upon a sled in the street?" Several children whose fathers were lawyers or automobile drivers volunteered to find out. On the following morning one of the girls made a

clear-cut statement of the law. She particularly emphasized the fact that the blame rested on the individual who was crossing the street or who was in the street in the middle of the block. Another question arose from a series of accidents resulting from falls on icy pavements: "Is there any law compelling owners of vacant lots to remove snow and ice from the sidewalks in front of their property?" Again the answer of the question was sought from out-of-school sources and brought for the enlightenment of the class. The fathers of many of our children are conductors and motormen. An accident in which two men were killed by being brushed from the steps of a crowded car caused this question to be brought up in class: "Is there any city law or street railway company ruling against permitting passengers to stand on the step of a crowded car?" The boy who answered this question, after talking it over with his father, pointed out the double responsibility—that of the passenger and that of the conductor.

Many teachers might hesitate to use this type of work, feeling, perhaps, that it is wrong to put horrible facts before the children. One outcome of this work is sufficient to show that such hesitation is unwise. On the morning after the first snowfall of the season, four reports of accidents caused by children riding into the streets on sleds were given. The class gravely discussed the likelihood of similar accidents to children in our school and asked to be permitted to go to the other rooms to warn the children against this danger and to suggest ways of enjoying the snow without running the risk of crippling themselves for life. Two children carried this message through the school. This incident suggests another profitable English exercise, short talks. These may be confined to individuals, as in this case, or they may be assigned to groups, or to an entire class, a variety of subjects permitting many lines of investigation. These talks may be delivered in other rooms, before neighboring schools, and even to gatherings of adults, such as parent-teacher associations and moving-picture audiences.

The following is a talk prepared by an eighth-grade girl:

THE DIFFERENCE BETWEEN WAR'S CASUALTIES AND THOSE RESULTING FROM ACCIDENTS.

FRIENDS: There is something at this present time that must be taken care of, something that if not prevented will cause great sorrow and suffering. The boys, returning from the dangers and horrors of war, hope, long for the safety and quietude of peace. Is this country safe for them? It is certainly not safe when 225 men, women, and children die each day from causes most of which are preventable. If you can picture 5 schoolrooms, each containing 45 lifeless persons whom you might have kept healthy, helpful citizens of the United States, then you have some idea of what goes on in this country each day. We knew during the war that some of our valiant boys would not return while others would come back cripples. But there was a very great reason for this—a reason that will never in the history of the world be forgotten. Every day we saw in the paper the list grow, the list of those who died that we might live and live better. It is only just and fair that we do our utmost to improve our country by saving the lives for which our soldiers died.

The boy who in a careless hurry and flurry loses an arm—is he to be classed with the soldier who gave his arm? Was there a reason for him to rush heedlessly across the street to arrive at, not his destination, but an accident? He paid dearly for his act, and his parents will feel the loss as much and more than the boy himself. The man who hit the boy is to be considered,

He will have the memory of it all stamped before his eyes for years. The parents, the man, and others had really nothing to do with the accident, but still they carry the responsibility.

Now look at the wounded soldier. At first sight of him, the loving old mother feels a shudder passing over her, and then quickly quite another feeling prevails—a feeling of pride and respect for that brave boy of hers. Everyone that sees the boy shares her feelings. He is welcome wherever he goes. Now compare these two boys that I have mentioned. See the numerous things they prove, among which one stands out strongly, namely, that bravery or courage does not mean carelessness.

During the last war the Government found the people ever ready and willing to help. Now that this great question has come to the fore, the question of safety, can't we see our duty and do it? A tedious battle has been fought and won, and now this battle also must be fought and won. We will be fighting in more than a just cause, fighting because people of our country are being killed by that ever-prevalent tyrant, carelessness. When we hear that people of our own Nation, our brothers, are being killed, don't we feel a stirring, a quivering about us, a resolve to do our part in the work? We fought to make the world safe. We have heard that expression time and time again, and to a certain extent that has been successfully carried out, but not quite. While people suffer death caused by a tyrant, we are not finished. When we entered the last war, we went to work with the idea of winning. Very soon we saw something else. We saw that we must win quickly. As soon as this thought took root, things began to change. Very soon victory was ours! Just so it will be in this case. The sooner we get at this thing the better. But remember, place "Safety First" first safely in your own mind and then in the minds of those about you.

The writing of stories which may be read to other rooms is another type of good English work. The writers may use personal experiences. Stories may be developed from given data, as the following.

1. A lighted match dropped carelessly: A family without a home.
2. A stone thrown carelessly: A boy with only one eye.

Children like to write stories using allegorical characters. One of this type written by a girl of the seventh grade is given on page 39.

Children delight in making rhymes and jingles. Just as the Mother Goose rhymes were used during the war to encourage thrift and conservation, so may they be used to teach accident prevention.

These five types of work are but suggestive of what may be done with accident material. The teacher who tries this kind of work will find that through it she can unify and challenge the language work of her grade.

B. THE VALUE OF INSTRUCTION IN ACCIDENT PREVENTION IN THE DEVELOPMENT OF CIVIC IDEALS.

The value of safety instruction and the safety organization can best be illustrated by some letters received from children in schools where safety activities are carried on. I witnessed the incident described in these letters. A boy had been violating the city ordinance and safety practices by stealing rides on trucks, wagons, and street cars. In the meeting which I attended a report of the violations was made.

Proceedings were stopped, the boy brought before the council, and made to give an account of himself. The remainder of the story is told in the letters.

LETTER I.

I think the Safety First Council of the Meramec School is one of the best organizations that ever was formed at this school. No one has been hurt since it was organized by running through the doors or around the fence. All hopping the fences and chalking the walks has been stopped. The board of education has sent us three signs, one for each corner of the school, to warn autoists of the "school zone." The council is composed of 30 boys, all of whom are over 12 years of age and capable of taking the children across the street when the officer is not there. They meet every Thursday at 1.45 p. m. in the faculty room to discuss things for the betterment of the society. I am a member and am proud to say so.

Hoping we keep the good work up,

(Signed) JOSEPH KOENIG.

LETTER II.

I am glad that I joined the Junior Safety Council. It is a great success at the Meramec School. The Safety Council is trying to put a stop to all accidents. There was a boy who hopped trucks, we made him come to our meeting. We had a trial. Then we made him give a speech about why he had hopped trucks but he hadn't any speech. We asked him if he wanted to join the Meramec Safety Council. He did so. We put him on a committee to keep boys from hopping trucks. He couldn't very well hop them himself while he told other boys not to do so, besides we had our eye on him. I think this will cure him from hopping trucks. Anything that we can do to help forward this movement, count on the Meramec boys. I hope you will come to see us again soon.

Yours truly,

(Signed) HOWARD WHALEY.

LETTER III.

I think you will remember me as the boy who hopped trucks and wagons. I am glad to say I am thoroughly cured of the habit. One day I saw some boys skating in the street. Along came a truck. They caught hold of it and rode some distance. I thought this was dangerous and could not help thinking what the Meramec boys would do to him if they were caught. I am glad to say they were not Meramec boys. They were 9 years old and ought to have known better.

Yours truly,

(Signed) EMMETT BROWN.

LETTER IV.

I have just joined the Safety Council and I have been present at two meetings. It is the finest organization ever formed in the Meramec. The Safety Cadets are trying their best to put a stop to all accidents in the Meramec School. We have a new member who always hopped trucks. Nothing we could do would stop him outside of a daily fight. We finally brought him before the council. He hadn't any excuse except that he only hopped trucks when he was in a hurry.

We suggested that he either start on time or that he could walk fast or run as the rest of us do. He decided to join the gang. He is now a hard working member (and a willing member) of the Meramec Safety Council.

Yours truly,

(Signed)

WALTER DORN.

C. RESULTS OF INSTRUCTION IN THE REDUCTION OF ACCIDENTS.

When we began an experiment in the reconstruction of the curriculum on the basis of the realization of specific social objectives we selected education in accident prevention because of its relative simplicity and because of the ease with which the results of instruction might be measured. The standard educational tests have been utilized to determine the adequacy with which we have realized conventional values. The purpose of this discussion is to present a study of accident statistics and to show that we have measured the

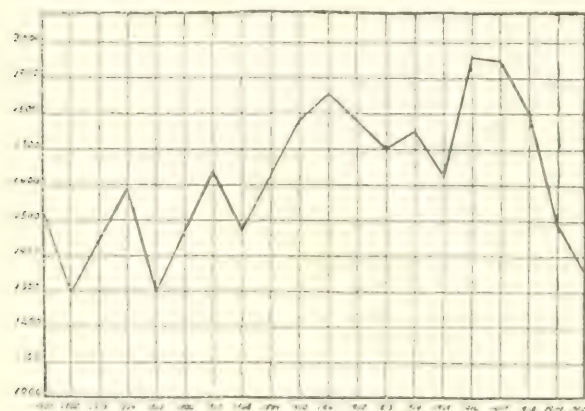


FIG. F. Coroner's Inquests, St. Louis, 1901-1920.

results of instruction on the social side, that is, in the reduction of accidents themselves.

I present first a graph showing the coroner's inquests from 1901 to 1920, gradual, though not in which there is a uniform, rise in the number of cases before some definite

work in accident prevention began and before educational effort began to play a part. (See Fig. F.) This decrease in the number of deaths by accident after the beginning of educational effort will be made clear by noting in the following graph the deaths from automobile accidents alone. (See Fig. G.) This graph shows a constant increase in the total number of accidents up to 1919, with a sharp decline from then on coincident with instruction in accident prevention.

Figure H shows the increase in the number of automobiles on the streets of St. Louis. This indicates that the number of deaths increased in direct proportion to the number of automobiles until the beginning of 1919 when the curve of automobiles rose precipitately, and the number of deaths declined sharply.

The following diagrams of the fatal accidents illustrate further the value of instruction in accident prevention. In 1917, there were 123 fatal accidents to persons under 20. Of these, 50 accidents occurred to children between 6 and 16. The ages of 6 to 16 seem

appropriate because between these ages lie most of the elementary school children. Figure I shows the fatalities commencing with 1917, and their distribution among children of these ages.

Several points should be noted. In 1917 no systematic work in accident prevention was done, and the number of fatalities was 50; 1918 shows a decrease to 36 when there naturally would have been an increase. This decrease was due to the fact that in September a systematic no-accident campaign was carried on through the schools and was continued rather systematically through the remainder of the year. In 1919 systematic work was done in only one or two schools, and the number again increased to 49. The effect of instruction in 1918 carried over to a certain degree, and this, in addition to some work that was done in 1919, caused the number of accidents

to be smaller than in 1917. The number would have perhaps reached 60 had nothing been done. Toward the end of 1919 a manual authorized by the National Safety Council was put into all the schools, and systematic work was begun in most of them. The result is shown in the statistics for 1920.

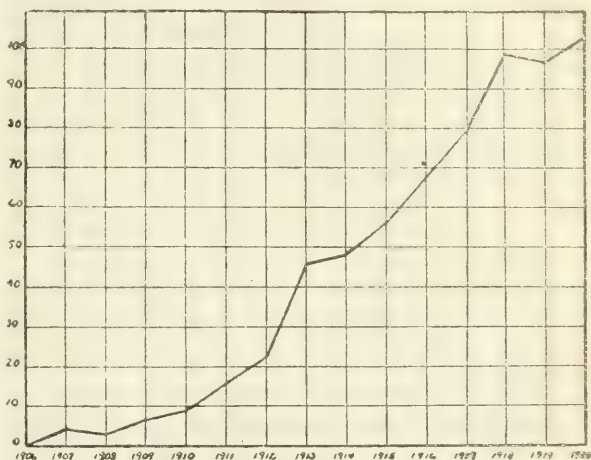


FIG. G.—Deaths from automobile accidents, St. Louis, 1906-1920.

The year shows a decrease of 60 per cent over 1919 and 80 per cent over what might have been had the conditions of 1917 prevailed, together with the increase of accident opportunity in the city.

It will also be noted from Table 18 and Figure J that these fatal accidents, like school accidents, are most frequent in certain localities. For example, one school district has 6.7 deaths per 1,000 of school population, while 48 school districts with a school population of 35,000 have no deaths. The school district with the largest number of fatalities is located in a very congested region, but the next highest, with 5.5 per 1,000, is not in a congested quarter. On the other hand, the school mentioned above as having the unique record, due to instruction in accident prevention, is in quite as con-

gested a section as the district in which the highest record of fatalities exists.

It is important to note in this connection also that in the year 1920 we have had only 2 deaths from public-utility accidents, 1 street-railway accident, and 1 accident from a fallen wire. These 2 deaths for 1920 may be compared to 12 for 1919 and 40 for the years of 1917, 1918, and 1919. This decline also is the first over a series of years. It is not out of place to note here the simplicity of the problem of public-utility accidents and how closely the result of instruction follows the study of causes. The 40 fatal accidents for 1917, 1918, and 1919 and 1,000 nonfatal accidents resulted from four causes, as follows: First, from stealing rides on street cars; second, from running into the streets while playing and being struck by street cars; third,

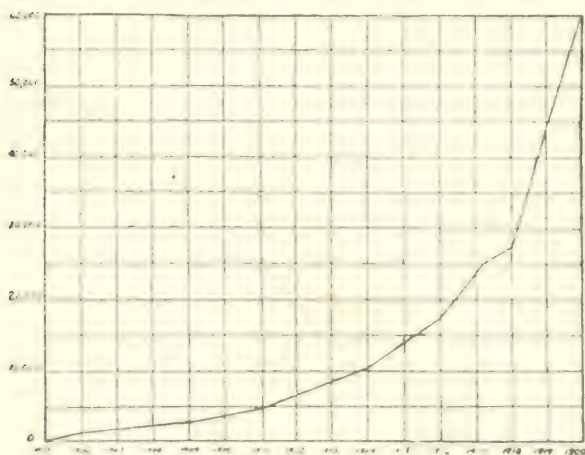


FIG. 11.—Increase in number of automobiles in St. Louis 1905-1920.

from contact with live wires, generally from grasping dangling wires; fourth, from playing on railroad tracks. The knowledge of these causes and the development of controls in the children over them led to the reduction of accidents as indicated.

The conclusion from these statistics is that, on the one

hand, in spite of congestion and other unfavorable conditions, proper school instruction will eliminate largely, if not entirely, accidents to school children, and even decrease the number of accidents to those children who are not in school. The instruction will also decrease the number of accidents to adults. On the other hand, these charts show that certain sections of the city have a high record of fatality to children or are "sore spots" that need education in accident prevention much more than others. Nineteen schools out of 122 have more than half of the fatalities. And these charts show also that there is no definite relation between the number of accident opportunities and the number of fatalities. The obvious need is education in accident prevention and the provision of additional play space in congested quarters. The additional play space is needed not because instruction fails to prevent accidents but because in congested quarters the accidents

would have to be eliminated at the expense of play opportunity for children.

Table 2 shows that the largest number of accidents are caused by automobiles and burns, and also that the latter are affected least by instruction, especially in the winter months. The obvious conclusion from this chart is that miscellaneous instruction is of little value. Each city must make its own analysis, and then center its instruction upon its own needs. This is necessary not only because of the fact that the educational value of the instruction will be greater but also because education in accident prevention justifies itself on purely educational grounds.

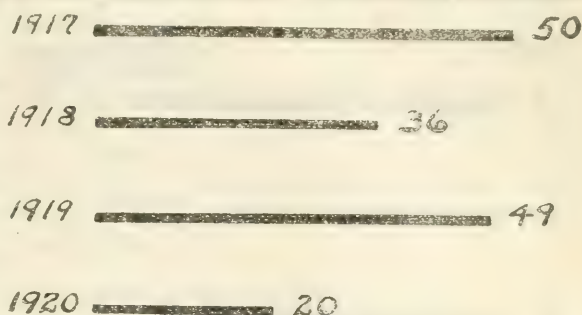


FIG. 1.—Accidental deaths, children of school age, St. Louis—all causes, 1917-1920.

TABLE 27.—Accidental deaths: Children of school age.

[Distribution by cause.]

Cause	1917	1918	1919	1920	1921	4 months, 1922.
Automobile	14	17	15	16	13	3
Street car	8	1	6	1	1	
Wagon	3	2				
Fall from	1	1	1			1
Burns	8	5	8	2		1
Poisoning	4	2	3			
Drowning	3	2	1		1	
All others	10	6	9	1	1	1
Total	50	36	49	20	16	5

This table shows a good decline in accidents to children of elementary school age in spite of the rather stationary condition of accidents in general.

Out of a total of 125 people killed in St. Louis during the first four months of the year 1922, 28, or approximately 22 per cent, were under 20 years of age. Twelve of these were killed in automobile accidents, and 3 of these were between the ages of 6 and 16, approximately elementary-school age. These ages include at least all elementary-school children. Of the 16 children who were killed from other causes, only 2 were of school age. The 16 were distributed as follows: Three from playing with matches, 6 from boiling water, 1 from a lighted candle, 1 from a bonfire, 1 from a street car, and 3 from drowning. The remarkable thing about these accidents is the small number of children of school age compared to those

just younger and older than school age. This is, no doubt, partly due to the fact that the children are under school supervision a large part of the day and therefore little subject to accident, but the fact that the number of deaths to school children has declined so rapidly with instruction in accident prevention in school indicates

Schools

*Rate per 1,000
School Pop'n.*

1 ————— 6.7

1 ————— 5.5

3 ————— 4.8

14 ————— 4.2

18 ————— 2.3

25 ————— 1.2

48 0

FIG. 3.—Deaths from accidents to pupils of certain schools (children absent on 1911, St. Louis, 1917, 1918, 1919, and January and February, 1920).

that the favorable situation is due mainly to the result of the instruction and demonstrates the value of training in carefulness.

Another point of very great significance must be noted. During the five years and four months covered by these statistics only two deaths resulted to persons of school age going to and from school, and no death occurred on school premises. During the same period approximately 400 persons under 20 were killed by accident in the homes, on the streets, and in industry. In other words, one-half of 1 per cent of the total deaths occurred to children only indirectly under school supervision. The two children who were killed were on their way from school. One child who was stealing a ride on a street car was knocked from it and killed, and another was run over by a truck.

Even during a period when no special instruction was given in the schools, and when little concerted effort was made in the city in the elimination of accidents, children were safe from 8.30 in the morning until 4 in the afternoon, while directly or indirectly under school supervision. The serious problem is that of children and adults outside of school influence.

The very patent conclusion from these data, then, is that instruction in accident prevention must be real education; it must not be

spasmodic nor misdirected if it is to be effective. The problem is specifically that of developing controls within the children themselves—e. g., habits, attitudes, and ideals—that will carry over into the complex life of the community when persons are unsupervised; when they are left to direct their own energies. This conclusion implies a generally misdirected effort by safety advocates in that they have devoted unnecessary energy to the care of school children coming out of schools and going home from and coming to school. The efforts of the schools, the public safety councils, and directors of safety should be centered upon the problem of the whole population away from school influences. The schools have the finest opportunity and the greatest possibility of effecting favorable results. We must meet our opportunities.

VII. BIBLIOGRAPHY.

The following bibliography has been selected with reference to its value in assisting the teacher in the method of instruction in accident prevention. No effort is made here to include the vast amount of material dealing with the subject matter. Bibliographies of matters of that kind may be had from public libraries, the National Safety Council, local Safety Council, and other sources.

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